Execution Version

LEASE AGREEMENT

BY AND BETWEEN

CITY OF ALAMEDA,

a charter city and municipal corporation
AS LANDLORD

and

ALAMEDA SWIMMING POOL ASSOCIATION

a non-profit organization
AS TENANT

TABLE OF CONTENTS

PAGE

1. DEMISE. 1

2. PREMISES. 1

2.1 Premises 1

2.2 Land and Parking 1

2.3 Possession 2

3. TERM. 2

3.1 Term 2

4. RENT. 2

4.1 Rent 2

5. OPERATING EXPENSES. 2

6. USE; COMPLIANCE WITH LAWS 2

6.1 Use 2

6.2 Compliance with Laws 2

6.3 Annual Meetings 3

6.4 Posting of Financial Statement 3

7. MEMBERSHIP; REQUIRED SWIMMING PROGRAMS; LIFEGUARDS. 3

7.1 Rules and regulations 3

7.2 Pool Membership 4

7.3 Complaints 5

7.4 Annual Use Reporting 5

7.5 Required Swimming Programs. 5

7.6 Schedule 6

7.7 Lifeguards 6

7.8 Vouchers 7

8. UTILITIES. 8

8.1 Payments for Utilities and Services 8

8.2 No Liability of Landlord 8

9. PERSONAL PROPERTY AND POSSESSORY INTEREST TAXES. 8

9.1 Tenant's Tax Obligation 8

9.2 Personal Property Taxes 9

TABLE OF CONTENTS
(CONTINUED)

PAGE

9.3 Possessory Interest Taxes 9
9.4 Payment....9
10. ALTERATIONS. 9
10.1 Landlord Consent Required 9
10.2 Alterations....10
10.3 Excavations....10
10.4 Liens....11
11. MAINTENANCE AND REPAIR OF PREMISES....11
11.1 Maintenance and Repair by Tenant 11
12. ENVIRONMENTAL PROTECTION PROVISIONS. 11
12.1 Hazardous Materials 11
12.2 Reportable Uses Required Consent 12
12.3 Remediation Obligations 12
12.4 Environmental Permits....13
12.5 Landlord's Inspection Right 14
12.6 Hazardous Materials Handling Plan 14
12.7 Hazardous Materials Indemnity....15
13. ASSIGNMENT AND SUBLETTING. 15
13.1 Landlord Consent Required 15
13.2 Landlord Recapture....16
13.3 Reasonable Consent 16
13.4 Transfer Premium 16
13.5 No Release 17
13.6 Expenses and Attorneys' Fees 17
13.7 Limitations on Transfer Reasonable 17
14. INDEMNITY AND WAIVER OF CLAIMS. 17
14.1 Tenant Indemnification....17
14.2 Landlord Indemnification 18
14.3 Survival/No Impairment 18
15. INSURANCE. 18

TABLE OF CONTENTS
(CONTINUED)

PAGE

15.1 Tenant's Insurance 18
15.2 Requirements For All Policies 19
15.3 Certificates of Insurance 19
16. DAMAGE OR DESTRUCTION. 19
17. CONDEMNATION. 20
18. DEFAULT. 20
18.1 Events of Default 20
18.2 Remedies 21
18.3 No Waiver 22
18.4 Remedies Cumulative 22
18.5 Severability 22
19. LIMITATION OF LIABILITY 22
20. RENEWAL OR EXTENSION. 22
21. SURRENDER OF PREMISES 22
22. HOLDING OVER. 23
23. NOTICE. 23
24. LABOR PROVISIONS. 23
24.1 Equal Opportunity 23
24.2 Convict Labor 24
24.3 Prevailing Wages and Related Requirements 24
25. MISCELLANEOUS. 25
25.1 Governing Law 25
25.2 Severability 25
25.3 Force Majeure 25
25.4 Signs 25
25.5 Brokers 25
25.6 Access by Landlord 26
25.7 Article and Section Titles 26
25.8 Authority 26
25.9 Quiet Possession 26

TABLE OF CONTENTS
(CONTINUED)

PAGE

25.10 Asbestos Notification for Commercial Property Constructed Before 1979 26
25.11 Lead Warning Statement.....26
25.12 OFAC Certification.....27
25.13 Certified Access Specialist Disclosure 27
25.14 Entire Agreement.....27
25.15 Rules and Regulations.....27
25.16 Financial Statement.....27
25.17 Counterparts.....28

INDEX OF EXHIBITS

Exhibit

A PREMISES

A-1 LICENSED LAND

B COMMENCEMENT LETTER

C ENVIRONMENTAL QUESTIONNAIRE

D RULES AND REGULATIONS

LEASE AGREEMENT

BASIC LEASE INFORMATION

Lease Date:	Dated as of _____ ___, 2023 for reference purposes only
Landlord:	City of Alameda, a charter city and municipal corporation
Landlord's Address:	City of Alameda Alameda Recreation and Park Department 2226 Santa Clara Ave Alameda, CA 94501 Tel: (510) 747-7529 Attn: Director ARPD@alamedaca.gov
Tenant:	Alameda Swimming Pool Association
Tenant's Address:	US Mail: P.O. Box 2376 Alameda, CA 94501 Physical: c/o Paul Delle Cese 1361 Park Street, Suite 211 Alameda, CA 94501 Email: wilpilot@mac.com
Premises:	Lincoln Park Site (as further described on **Exhibit A**) 1450 High Street Alameda, CA 94501 Franklin Park Site (as further described on **Exhibit A**) 1432 San Antonio Street Alameda, CA 94501
Length of Term:	Four (4) years and eleven (11) months

Estimated Commencement Date:	[____], 2023
Estimated Expiration Date:	[____], 2027 ***[NTD: Date to be 4 years, 11 months from Estimated Commencement Date.]***
Extension Option:	As provided in Section 20.
Consideration:	The lease of the premises by Landlord is made in consideration of the membership and programming commitments by Tenant to residents of the City of Alameda under this Lease.
Taxes and Utilities:	Tenant shall pay all costs for services and utilities to the Premises, as defined in the Lease. Tenant shall pay all taxes (including possessory interest taxes) levied on or against the improvements at the Premises or Tenant's personal property.
Permitted Use:	Operate and maintain the pools and related facilities for swimming and aquatics programming.

LEASE AGREEMENT

THIS LEASE AGREEMENT is made and entered into by and between CITY OF ALAMEDA, a charter city and municipal corporation ("**Landlord**") and Alameda Swimming Pool Association, a California nonprofit public benefit corporation ("**Tenant**"). The Basic Lease Information, the Exhibits and this Lease Agreement are and shall be construed as a single instrument and are referred to herein as the "**Lease**".

1. DEMISE.

In consideration for the rents and all other charges and payments payable by Tenant, and for the agreements, terms and conditions to be performed by Tenant in this Lease, and subject to City Council approval, Landlord does hereby demise and lease to Tenant and Tenant does hereby leases and takes from Landlord, all of those certain real properties situated in the City of Alameda, County of Alameda, State of California, as described in **Exhibit A** (as defined therein, each the "**Franklin Park Site**" and the "**Lincoln Park Site**" and, collectively the "**Premises**"), which is incorporated herein by this reference as if fully set out herein, upon the agreements, terms and conditions of this Lease for the Term hereinafter stated. Notwithstanding the use of the terms "Landlord", Tenant" and "Premises" for the convenience of drafting and reading, the relationship of the parties is that of ground lessor and ground lessee, and the subject of this lease is two sites in public parks owned by the Landlord. Landlord acknowledges that Tenant constructed, maintained and operated the swimming pools and appurtenant facilities located at the Premises under prior leases between Landlord and Tenant and that Tenant is the owner of all improvements located at the Premises. Tenant acknowledges that it has no ownership interest in the real property constituting the Premises, exclusive of the improvements described in the immediately preceding sentence.

2. PREMISES.

2.1 Premises. The Premises demised by this Lease are as specified in **Exhibit A**. Said Premises are located within Franklin and Lincoln Parks.

2.2 Land and Parking. Provided that Tenant shall not be in Default under the terms and conditions of this Lease, in addition to the Premises, Landlord grants to Tenant a license to use the land area appurtenant to the Premises as generally depicted on **Exhibit A-1** attached hereto ("**Land**") for access and ingress to, and egress from, the Premises the purposes of use, operation, maintenance, repair and replacement of Premises and the improvements thereon. Under no circumstances may the Land be utilized for the storage (beyond 72 hours), repair or maintenance of any vehicles. Should Tenant or its agents, employees or invitees use the Land or any portion thereof in violation of this Section 2.2, Landlord shall have the right, without notice, in addition to such other rights and remedies that it may have, to tow away any vehicle involved and charge the cost of towing and storage to Tenant, which cost shall be immediately payable upon demand by Landlord as Additional Rent. Except as set forth in Section 14.2, neither Landlord nor any Landlord Related Party (as defined in Section 14.1 below) shall be liable for: (a) loss or damage to any vehicle or other personal property parked or located upon or within the Land, whether pursuant to this license or otherwise and whether caused by fire, theft, explosions, strikes, riots, or any other cause whatsoever; or (b) injury to or death of any person in, about or

around any parking spaces or any portion of the Land or any vehicles parked thereon whether caused by fire, theft, assault, explosion, riot or any other cause whatsoever and Tenant hereby waives any claims for, or in respect to, the above. Tenant shall not assign any of its rights under this Section 2.2 except in connection with an assignment of Tenant's interests in the Lease or a sublease in accordance with Article 13 below and in the event an attempt to assign is made, it shall be void.

2.3 Possession. Tenant accepts the Premises in "AS IS" "WITH ALL FAULTS" condition and configuration without any representations or warranties by Landlord, and subject to all matters of record and all applicable laws, ordinances, rules and regulations, with no obligation of Landlord to make alterations or improvements to the Premises. Tenant acknowledges that neither Landlord nor any agent of Landlord has made any representation or warranty with respect to the suitability of the Premises or the Land or infrastructure for the Permitted Use. Landlord shall not be liable for any latent or patent defects in the Premises or the Land.

3. TERM.

3.1 Term. The term of this Lease ("**Term**") shall be for the period specified in the Basic Lease Information, commencing on the later of (a) the Estimated Commencement Date or (b) one (1) day after this Lease has been approved by the City Council, at its sole and absolute discretion, the date of which approval shall be deemed to be the effective date of an ordinance approving this Lease as required by the City Charter ("**Commencement Date**"). This Lease shall terminate at midnight on the day that is fifty-nine (59) full calendar months following the Commencement Date ("**Expiration Date**"), unless sooner terminated or extended as hereinafter provided.

4. RENT.

4.1 Rent.

From and after the Commencement Date, Tenant shall pay to Landlord, in advance of the first day of each anniversary of the Commencement Date, the rent specified in the Basic Lease Information ("**Base Rent**").

5. OPERATING EXPENSES.

Tenant shall pay all of the operating expenses related to the Premises, including but not limited to all costs of management, operation, maintenance and insuring of the Premises.

6. USE; COMPLIANCE WITH LAWS.

6.1 Use. The Premises shall be used for the Permitted Use and for no other use whatsoever.

6.2 Compliance with Laws. Tenant shall comply with all laws, ordinances, rules, regulations and codes, of all municipal, county, state and federal authorities (collectively, "**Laws**") pertaining to Tenant's use and occupancy of the Premises and the conduct of the

Permitted Use. Tenant shall not commit, or suffer to be committed, any waste upon the Premises or any public or private nuisance. Tenant shall not permit any objectionable odor to escape or be emitted from the Premises and shall ensure that the Premises remain free from infestation from rodents or insects. For clarity, odors associated with the storage and use of ordinary and customary materials reasonably required to be used in the course of the Permitted Use (including but not limited to common chemicals used to adjust pH balance in pool water and pool water cleaning and/or disinfecting chemicals) shall not be deemed objectionable.

Tenant shall maintain and operate said swimming pools and facilities in compliance with all the regulations of the City of Alameda, the State of California Environmental Health Department and the Alameda County Department of Environmental Health (ACDEH) having jurisdiction thereof. Tenant shall submit to the Lessor copies of all inspections and permits from ACDEH upon receipt.

Tenant shall keep all equipment onsite as required by OSHA, the State of California, ACDEH and American Red Cross for lifeguard related equipment.

With respect to the Americans with Disabilities Act, as amended (42 U.S.C. Section 12101 et seq. (the "**ADA**"), (a) Tenant shall comply with the operational requirements for swimming pools by maintaining lifts at each of the Franklin Park Site and the Lincoln Park Site, and (b) with respect to other aspects of the ADA, the Parties agree as follows in this paragraph of this Section 6.2. The Parties hereby acknowledge that, under the ADA and its implementing regulations, architectural barriers must be removed in pre-existing facilities at public accommodations only when it is "readily achievable" to do so and that the application of the "readily achievable" standard under the ADA can be subject to considerable uncertainty in application to specific facilities and ownership entities. Accordingly, the Parties have agreed to address their respective obligations regarding such aspects of the ADA as set forth in Article 14 and Article 18, below.

6.3 Annual Meetings. Tenant agrees that its Board of Directors shall hold a minimum of one meeting each year. The meetings shall be open to all members, with notice of the meeting schedule posted at the Lincoln and Franklin Pools and on its website a minimum of 21 days in advance of the meeting date.

6.4 Posting of Financial Statement. Tenant agrees to post a copy of its annual income and expense report at both the Franklin and Lincoln Pools for public review. Tenant shall submit annual financial reports to the City Manager or designee. Tenant acknowledges that it is registered as a tax-exempt organization under Section 501(c)(3) of the United States Internal Revenue Code. Tenant shall comply with all obligations required of such organizations in connection with tax returns, including Form 990 of the United States Internal Revenue Service. Landlord acknowledges that filings on Form 990 are available to the public without charge on the Internet.

7. MEMBERSHIP; REQUIRED SWIMMING PROGRAMS; LIFEGUARDS.

7.1 Rules and regulations adopted by Tenant, including rules governing the use of said swimming pools and facilities and any admission or other fees charged thereon, may not be

in conflict with the rules and regulations set forth in **Exhibit D**, the other terms and conditions of this Lease, or applicable Laws.

7.2 Pool Membership.

(a) General. Subject to other provisions in this Lease, including those regarding vouchers and recipients of vouchers in Section 7.8, Tenant may maintain a membership roster and limit admission to the pools on the Premises to its members. Tenant shall post clear information about membership, including a membership application, cost, and volunteer requirements, on its website and at the Premises. There shall also be information about membership application and non-member programs posted at the Premises that is visible from the exterior of the Premises. Tenant shall ensure that hard copies of membership applications are available at the Premises to the public at all times. Membership application shall have clear information about annual cost plus any and all requirements. Tenant shall provide current information including membership application, program schedule and non-member programs to Landlord, which will, through its Recreation and Parks Department, post provided information on the City website and print publications such as the tri-annual activity guides. Tenant shall respond to all requests regarding membership within twenty-one (21) calendar days. Should Tenant elect to maintain a membership roster, Tenant may only limit membership on the basis of majority (18 years and older), residency in the City of Alameda, payment of fees, and adherence to the rules and regulations of Tenant. Tenant shall not create or maintain a wait list for members for any person satisfying the requirement set forth in the immediately preceding sentence, and any such person may become a member by submission of a completed application and payment of fees. For clarity, Tenant does not control the Alameda Ala-Gators Swim Team or any of its operations, and, to the extent such swim team creates or maintains a wait list, such action shall not be a considered a breach of Tenant's obligations under this Lease. A refusal of membership by Tenant may be reviewed by Landlord and the decision of Landlord shall be final.

(b) Financial Assistance Program. During the Term, Tenant shall maintain a financial assistance program for each calendar year as follows. Tenant shall maintain a link to a financial assistance application on its website, which application shall be substantially similar to financial assistance application forms used in the current or immediately preceding calendar year by the Alameda Recreation and Park Department. Landlord shall share its financial assistance scoring methodology with Tenant, which methodology shall be used by Tenant in scoring applications, and Tenant shall set a minimum scoring standard for awards of financial assistance in consultation with Landlord. The financial assistance program of Tenant shall be operated such that the recipient of any financial assistance award shall pay a total of One Hundred Dollars ($100) in membership dues for the applicable calendar year, which amount shall be paid in two installments of Fifty Dollars ($50) each, the first by March 31 or within thirty (30) days of receipt of award, whichever comes later, and the second by June 30 or within sixty (60) days of receipt of award, whichever comes later, with the balance of the regular membership dues for such recipient being funded from Tenant's financial assistance program. In each calendar year, Tenant shall make financial assistance awards to applicants with qualifying scores on a first come, first served basis until the first award is issued which causes the total amount of membership dues funded through the financial assistance program in such calendar year to equal or exceed Five Thousand Dollars ($5,000). Receipt of a financial assistance award in any calendar year shall not entitle the recipient to any award in any subsequent year. Applications

for financial assistance must be submitted for each year in which a person desires to receive financial assistance. To receive any financial assistance award in any calendar year, the recipient must comply with all non-financial terms and conditions generally applicable to Tenant's members in such calendar year, including without limitation volunteer obligations and pool rules. Tenant shall maintain accurate records of each financial assistance award (which records shall include copies the recipient's financial assistance application and membership documentation), and may submit the same to Landlord for reimbursement. Not later than thirty (30) days following receipt of all such documents, Landlord shall issue a check to Tenant in the amount of the financial assistance award; provided, however, that Landlord shall not be under any obligation to reimburse any amount in excess of Five Thousand Dollars ($5,000) in the aggregate in any calendar year. Landlord hereby acknowledges that Tenant's operation of a financial assistance program is contingent upon Landlord's performance of its obligations under this Section 7.2(b).

7.3 Complaints. Tenant shall have a process, including an email, for complaints regarding membership and non-member programs. This information and process shall be readily available to members and provided to Landlord for posting on the City website under the Recreation and Parks Department. Complaints received shall be provided to Landlord at least quarterly and Landlord and Tenant shall meet to review complaints and seek resolution where necessary and/or feasible.

7.4 Annual Use Reporting. By December 31st of each calendar year, Tenant shall submit an annual report to Landlord and post at its facilities an annual report including: Number of members; number of non-member participants who participated in each program as identified in Sec. 7.4; number of people who requested membership and number who accepted or were denied.

7.5 Required Swimming Programs.

(a) Tenant shall provide a training and educational swimming program for kindergarten age children ("**Kinderswim**"). Kinderswim shall consist of a free learn to swim program for kindergarten aged children. Enrollment in Kinderswim shall be on a first-come, first-served basis, without discrimination as between members and non-members. Tenant shall ensure that spaces are available for at least 30 children at each of the Franklin Park Site and the Lincoln Park Site in each of the Spring and Fall of each calendar year.

(b) Tenant shall provide a training and recreational program for adults over the age of 50 ("**Senior Swim**"). Senior Swim shall consist of twice-weekly, year-round lap swim/water walking for seniors ages 50 or older and people with disabilities. Senior Swim shall not be limited to members in Tenant's association.

(c) Tenant shall provide at least three (3) swim sessions each year for Alameda-based non-profit organizations. Landlord shall approve the non-profit organizations that will benefit from the swim sessions from those organizations whose names are submitted by Tenant. Individuals attending the swim sessions associated with the non-profit organizations do not need to be members in Tenant's association.

(d) Tenant shall provide clear information about all of the programs described in Section 7.3 on its website, including instructions on how to participate and the schedule of such programming.

7.6 Schedule. Tenant agrees to submit a schedule of use for the following year to Landlord by December 31st of each year. Tenant may update such schedule from time to time on not less than sixty (60) days' prior written notice to Landlord.

7.7 Lifeguards.

(a) Tenant shall ensure that at least one lifeguard is present at all times any pool is in use. Lifeguards must hold certificates from the American Red Cross for lifeguarding (at or above the minimum certification level applicable to Tenant's swimming pools) and first aid, including CPR, in compliance with Health & Safety Code sections 116038 and 116045. This requirement may be satisfied by member volunteer lifeguards or paid lifeguards. Proof of all lifeguard certifications, including trainer certifications, must be provided to Landlord. Tenant shall provide to Landlord annually a list of all lifeguards certified in accordance with this Section 7.7(a).

(b) Landlord shall provide reimbursement for training and certification of Tenant's lifeguards as follows. For any person that is trained and certified in both lifeguarding and first aid/CPR as set forth in subsection (a), above, of this Section 7.7 to be eligible for reimbursement, Tenant shall submit to Landlord, through its Recreation and Park Department, the following: (i) a description of the training and certification course from the course provider, (ii) a copy of the receipt for payment to the course provider of the fee for the course (which receipt shall not be dated earlier than January 1, 2023 and (iii) a copy of the lifeguarding (and, if applicable, first aid/CPR) certificate issued to such person upon completion of such course. For clarity, such reimbursement shall be available both for courses conducted under contract by Tenant's certified Lifeguard Instructors as certified by the American Red Cross at Tenant's swimming pools and for courses conducted by third parties at other locations. Not later than thirty (30) days following receipt of all documents required for reimbursement pursuant to the immediately preceding sentence, Landlord shall issue a check to Tenant in the amount of the course fee as shown on the receipt copy provided by Tenant; provided, however, that Landlord shall not be under any obligation to reimburse any amount in excess of (1) Ten Thousand Dollars ($10,000) in the aggregate for all such training and certification courses in the twelve-month period from the date of the commencement of the Term to the first anniversary thereof or (2) Twenty Thousand Dollars ($20,000) in the twenty-four month period from the date of commencement of the Term, in the aggregate for all such training and certification courses, regardless of when they occur; provided further that Landlord shall have no obligation to make any reimbursement for any training or certification course for which documentation is submitted after the second (2nd) anniversary of the commencement of the Term.

(c) Tenant shall ensure that there is a supervisor present during all summer aquatics programs. This supervisor is in addition to the lifeguard that is also to be present.

(d) Tenant shall implement and fulfill the lifeguard requirements set forth in this Section 7.7 in accordance with the following schedule:

(i) Starting not later than January 1, 2023, certified lifeguards shall be provided for all Kinderswim and youth swimming instruction sessions;

(ii) Starting not later than the first day of Summer 2023 aquatics programs, certified lifeguards shall be provided for all weekday programs (including the programs identified above in subsection (d)(i), all Senior Swim sessions and all weekday family swim sessions);

(iii) Starting not later than the first day of Summer 2024 aquatics programs, certified lifeguards shall be provided for all programs described in the preceding subsections of this Section 7.7(d) and for not less than fifty percent (50%) of all weekend family swim sessions; and

(iv) Starting not later than the first day of family swim sessions in 2025, certified lifeguards shall be provided for all uses of Tenant's swimming pools.

(e) Tenant shall implement reasonable measures to provide adequate incentives for lifeguards to fulfill lifeguarding commitments and to hold lifeguards accountable for any failures.

(f) Notwithstanding anything to the contrary in the foregoing, all uses of Tenant's swimming pools by either the Alameda Ala-Gator Swim Team or the Alameda Fire Department are not programs operated by Tenant, but are operated independently by each such organization, and Tenant shall have no obligation with respect to lifeguarding or supervision of lifeguards during any such use.

7.8 Vouchers. Tenant shall provide Landlord with one hundred (100) vouchers per calendar year for distribution by Landlord to adult persons who are residents of the City of Alameda and not members of Tenant. A voucher shall entitle the voucher recipient and up to three (3) additional members of his, her or their household to admission to the Premises as set forth in this section, provided that such voucher recipient and each of his, her or their household in attendance complies with the same rules applicable to all members.

Landlord may distribute the vouchers as it deems appropriate in Landlord's sole discretion. Each voucher shall have a unique QR code that enables access to Tenant's scheduling website (which is hosted by calendly.com as of the Lease Date, but may be changed by Tenant in its sole discretion provided that the QR code on any voucher continues to function in the calendar year of provision by Tenant to City) for the voucher recipient to schedule participation in a regularly scheduled family swim session at either of Tenant's Premises (the Franklin Park Site or the Lincoln Park Site) on a single date in the applicable calendar year. The voucher recipient may select a family swim session from the set of all remaining scheduled family swim sessions in his, her or their discretion, provided that (i) the family swim session begins not less than forty-eight (48) hours after the time of selection by the voucher recipient and (ii) Tenant may limit access to any Premises on any family swim date to five (5) voucher recipients and their households.

Tenant shall ensure that rules for members at family swim sessions are posted conspicuously on the scheduling website used by any such voucher recipient. Tenant shall provide the vouchers for each calendar year to Landlord not later than January 31 of each calendar year of the Term except for the first calendar year of the Term, when Tenant shall provide the vouchers to Landlord not later than thirty (30) days after commencement of the Term.

8. UTILITIES.

8.1 Payments for Utilities and Services. Tenant shall reimburse Landlord for its usage of Landlord water as determined by reading the meters between the facilities of Landlord and Tenant and on the basis of the rates set forth in Landlord's actual East Bay Municipal Utility District (EBMUD) water utility bills. Landlord shall bill Tenant for its water usage on a semi-annual basis, and Tenant shall remit payment within 30 days of receipt.

Tenant shall contract directly with the providers of, and shall pay all charges for, gas, electricity, heat, cooling, telephone, refuse collection, janitorial, pest control, security and monitoring services furnished to the Premises, together with all related installation or connection charges or deposits ("**Utilities**"). If any Utilities are provided by Alameda Municipal Power ("**AMP**") it is understood and agreed that such entity is separate and distinct from Landlord and Tenant must contract directly with AMP for any such Utilities. If any such Utilities are not separately metered or billed to Tenant for the Premises but rather are billed to and paid by Landlord, Tenant shall pay to Landlord, as Additional Rent, its pro rata share of the cost of such services, as reasonably determined by Landlord. If any Utilities are not separately metered, Landlord shall have the right to determine Tenant's consumption by either submetering, survey or other methods designed to measure consumption with reasonable accuracy.

8.2 No Liability of Landlord. Except in the case of Landlord's negligence or willful misconduct, in no event shall Landlord be liable or responsible for any loss, damage, expense or liability, including, without limitation, loss of business or any consequential damages, arising from any failure or inadequacy of any service or Utilities provided to the Premises, whether resulting from any change, failure, interference, disruption or defect in supply or character of the service or Utilities provided to the Premises, or arising from the partial or total unavailability of the service or utility to the Premises, from any cause whatsoever, or otherwise, nor shall any such failure, inadequacy, change, interference, disruption, defect or unavailability constitute an actual or constructive eviction of Tenant, or entitle Tenant to any abatement or diminution of Rent or otherwise relieve Tenant from its obligations under this Lease.

9. PERSONAL PROPERTY AND POSSESSORY INTEREST TAXES.

9.1 Tenant's Tax Obligation. "**Taxes**" shall mean all taxes, assessments and governmental charges, whether federal, state, county or municipal, and whether general or special, ordinary or extraordinary, foreseen or unforeseen, imposed upon Tenant's personal property or trade fixtures, the improvements of Tenant located at the Premises, or any possessory interest therein, or their operation, whether or not directly paid by Landlord, but excluding those Taxes paid by Landlord.

9.2 Personal Property Taxes. Tenant shall pay all Taxes (as hereinafter defined) levied or imposed against the improvements of Tenant located at the Premises or Tenant's personal property or trade fixtures placed by Tenant in or about the Premises during the Term ("**Personal Property Taxes**").

9.3 Possessory Interest Taxes. The interest created by this Lease may at some time be subject to property taxation under the laws of the State of California. If property taxes are imposed, the party in whom the possessory interest is vested may be subject to the payment of the taxes levied on such interest. This notice is included in this Lease pursuant to the requirements of section 107.6(a) of the Revenue and Taxation Code of the State of California.

9.4 Payment. Tenant shall pay the Personal Property Taxes or possessory interest taxes in accordance with the instructions of the taxing entity. Tenant shall pay the Personal Property Taxes, if any, originally imposed upon Landlord, upon Landlord's election, either (a) annually within thirty (30) days after the date Landlord provides Tenant with a statement setting forth in reasonable detail such Taxes, or (b) monthly in advance based on estimates provided by Landlord based upon the previous year's tax bill. All Personal Property Taxes originally imposed upon Landlord and payable by Tenant with respect to the Premises shall be prorated on a per diem basis for any partial tax year included in the Term. Tenant's obligation to pay Taxes during the last year of the Term shall survive the expiration or termination of this Lease.

10. ALTERATIONS.

10.1 Landlord Consent Required. All improvements to the Premises made on or after the Commencement Date and estimated to cost over $50,000 (each an "**Alteration**") shall be reasonably approved by Landlord; and substantial reductions to swimming schedules and programs shall be submitted to Landlord for review and approval prior to implementation thereof. Tenant shall not make any alterations, improvements, or additions costing over $50,000 in or about the Premises or any part thereof without the prior written consent of Landlord, which consent may be reasonably conditioned upon criteria and/or requirements necessary to serve the Permitted Use. Any such approval by Landlord shall be in its proprietary capacity as Landlord and no such approval shall be deemed an approval by the City of Alameda in its regulatory capacity. Notwithstanding the foregoing, Tenant shall have the right to make improvement or alterations to the Premises without the consent of Landlord, provided that (a) the reasonably estimated costs of such improvements or alterations, together with the costs of any other improvement or alteration made to the Premises that were not approved by Landlord during the immediately preceding twelve (12) months period, do not exceed Fifty Thousand Dollars ($50,000) and, (b) are performed in full compliance with the terms set forth in Sections 10.2 through 10.4, below.

At no time shall Tenant have the right to install, operate or maintain telecommunications or any other equipment on the Premises, except as may be necessary for Tenant's Permitted Use of the Premises and Tenant's installation of such equipment is done in full compliance with this Article 10. Tenant acknowledges that neither Landlord nor any agent of Landlord has made any representation or warranty with respect to the Premises or with respect to the suitability or fitness of the same for any purpose, including with respect to the Permitted Use.

10.2 Alterations. Any Alterations to the Premises shall be at Tenant's sole cost and expense, and made in compliance with all applicable Laws. Prior to starting work, Tenant shall furnish Landlord with plans and specifications; required permits and approvals; evidence of contractors and subcontractors insurance in amounts reasonably required by Landlord and naming Landlord as additional insureds. In addition, if any such Alteration requires the removal of asbestos, an appropriate asbestos disposal plan, identifying the proposed disposal site of all such asbestos, must be included with the plans and specifications provided to Landlord. Landlord agrees to respond to Tenant's request for consent to any Alterations within fifteen (15) days following Tenant's delivery of such request, accompanied by plans and specifications depicting the proposed Alterations ("**Plans**") and a designation of Tenant's general contractor (and major subcontractors) to perform such work. Landlord's response shall be in writing and, if Landlord disapproves any Alterations, Landlord shall specify in reasonable detail in Landlord's notice of disapproval, the basis for such disapproval. If Landlord fails to timely notify Tenant of Landlord's approval or disapproval of any such Plans, Tenant shall have the right to provide Landlord with a second written request for approval (a "**Second Request**") that specifically identifies the applicable Plans and contains the following statement in bold and capital letters: "**THIS IS A SECOND REQUEST FOR APPROVAL OF PLANS PURSUANT TO THE PROVISIONS OF SECTION 10.2 OF THE LEASE.** If Landlord disapproves of any Plans, Tenant may revise Tenant's Plans and resubmit such Plans to Landlord; in such event the scope of Landlord's review of such Plans shall be limited to Tenant's correction of the items to which Landlord had previously objected. Landlord's review and approval (or deemed approval) of such revised Plans shall be governed by the provisions as set forth above in this Section 10.2. The procedure set forth above for approval of Tenant's Plans will also apply to any change, addition or amendments to Tenant's Plans. Landlord's approval of an Alteration shall not be deemed a representation by Landlord that the Alteration complies with Law. Upon completion, Tenant shall furnish Landlord with full and final unconditional waivers of liens and will cause a Notice of Completion to be recorded in the Office of the Recorder of the County of Alameda. All costs of any Alterations shall be borne by Tenant. All Alterations shall be made in a good and workmanlike manner, and Tenant shall maintain appropriate liability and property insurance throughout the construction. Tenant shall indemnify, defend, protect and hold Landlord harmless from and against any and all claims for injury to or death of persons or damage or destruction of property arising out of or relating to the performance of any Alterations by or on behalf of Tenant. Under no circumstances shall Landlord be required to pay, during the Term (as the same may be extended or renewed) any ad valorem or other Taxes on such Alterations, Tenant hereby covenanting to pay all such taxes when they become due.

10.3 Excavations. In the event Tenant intends to perform any Alterations requiring excavations below the surface of the Premises or construction of a permanent structure on the Premises, Tenant must determine the actual location of all utilities using standard methods (i.e., potholing, metal fish line, etc.) and submit this information with an application to excavate or application to build a permanent structure to Landlord for approval (which shall also include the approval of other applicable governmental authorities). The application shall include a site plan showing the location of utilities and that construction will not take place above the utility line or within the utility easement, specifically showing that no permanent structure will be constructed in these areas.

10.4 Liens. Tenant shall be responsible to pay all amounts for labor or materials furnished to Tenant for use in the Premises. Tenant shall not permit any mechanic liens, stop notices, or any other liens against the Premises for any labor or materials furnished to Tenant in connection with work performed on or about the Premises by or at the direction of Tenant. Subject to the following provisions of this Section 10.4, Tenant shall indemnify, hold harmless and defend Landlord (by counsel reasonably satisfactory to Landlord) from any liens and encumbrances arising out of any work performed or materials furnished by or at the direction of Tenant. In the event that Tenant does not, within thirty (30) days following the imposition of any such lien or stop notice, cause such lien or stop notice to be released of record by payment or posting of a proper bond, Landlord shall have, in addition to all other remedies provided herein or by law, the right, but not the obligation, to cause the same to be released by such means as it may deem proper, including payment of the claim giving rise to such lien; provided, however, that Tenant shall not be required to release any such lien or stop notice during any period that the Tenant shall in good faith contest the validity or the amount of any such lien or stop notice, provided that such contest of the validity or application of any such lien by appropriate proceedings does not involve any imminent danger of the sale, forfeiture or loss of any of Landlord's rights in the ownership of the Premises or any part thereof.. All such sums paid by Landlord and expenses reasonably incurred in connection therewith, including attorneys' fees and costs, shall be payable to Landlord by Tenant on demand.

11. MAINTENANCE AND REPAIR OF PREMISES.

11.1 Maintenance and Repair by Tenant.

(a) Tenant General Maintenance. Tenant shall, at its sole cost and expense, maintain its improvements at the Premises in good repair and in a neat and clean condition, including making all reasonably necessary repairs and replacements in order to serve the Permitted Use. Such repair and maintenance obligations shall apply to all improvements on the Premises. Landlord shall have no obligation hereunder for the maintenance and repair of the Premises or any improvement thereon.

(b) Tenant's Exterior Maintenance and Repair. Tenant shall also maintain in good repair the structural elements of any improvements to the Premises.

12. ENVIRONMENTAL PROTECTION PROVISIONS.

12.1 Hazardous Materials. "**Hazardous Materials**" shall mean any material, substance or waste that is or has the characteristic of being hazardous, toxic, ignitable, reactive, flammable, explosive, radioactive or corrosive, including, without limitation, petroleum, solvents, lead, acids, pesticides, paints, printing ink, PCBs, asbestos, and those materials, substances and/or wastes, including wastes which are or later become regulated by any local governmental authority, the state in which the Premises are located or the United States Government, including, but not limited to, substances defined as "hazardous substances," "hazardous materials," "toxic substances" or "hazardous wastes" in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, 42 U.S.C. §9601, *et seq*.; the Hazardous Materials Transportation Act, 49 U.S.C. §1801, *et seq*.; the Resource Conservation and Recovery Act; all environmental laws of the state where the

Premises are located, and any other environmental law, regulation or ordinance now existing or hereinafter enacted. "**Hazardous Materials Laws**" shall mean all present and future federal, state and local laws, ordinances and regulations, requirements of governmental entities and manufacturer's instructions relating to industrial hygiene, environmental protection or the use, analysis, generation, manufacture, storage, presence, disposal or transportation of any Hazardous Materials, including without limitation the laws, regulations and ordinances referred to in the preceding sentence.

12.2 Reportable Uses Required Consent.

(a) Except as permitted in this Article 12, Tenant hereby agrees that Tenant and Tenant's officers, employees, representatives, agents, contractors, subcontractors, successors, assigns, subtenants, concessionaires, invitees and any other occupants of the Premises (for purposes of this Article 12, referred to collectively herein as "**Tenant Parties**") shall not cause or permit any Hazardous Materials to be used, generated, manufactured, refined, produced, processed, stored or disposed of, on or under the Premises or transported to or from the Premises without the express prior written consent of Landlord, which consent may be limited in scope and predicated on strict compliance by Tenant with all applicable Hazardous Materials Laws in connection with using, generating, manufacturing, refining, producing, processing, storing or disposing of Hazardous Materials on, under or about the Premises.

(b) In connection therewith, Tenant shall, at its own expense, procure, maintain in effect and comply with all conditions of any and all permits, licenses and other governmental and regulatory approvals required for the storage or use by Tenant or any of Tenant Parties of Hazardous Materials on the Premises, including without limitation, discharge of (appropriately treated) materials or wastes into or through any sanitary sewer serving the Premises.

(c) The foregoing notwithstanding, Tenant may use, store and transport ordinary and customary materials reasonably required to be used in the course of the Permitted Use (including but not limited to common chemicals used to adjust pH balance in pool water and pool water cleaning and/or disinfecting chemicals), paints and coatings used to maintain the improvements constructed by Tenant on the Premises and other infrastructure necessary to support the Permitted Use, ordinary office supplies (copier, toner, liquid paper, glue, etc.) and common household and restroom cleaning materials, so long as such use is in compliance with all Hazardous Materials Laws and does not expose the Premises or neighboring property to any material risk of contamination or damage or expose Landlord to any liability therefore.

12.3 Remediation Obligations.

(a) If at any time during the Term, any contamination of the Premises by Hazardous Materials shall occur where such contamination is caused by the act or omission of Tenant or Tenant Parties ("**Tenant's Contamination**"), then Tenant, at Tenant's sole cost and expense, shall promptly and diligently mitigate, encapsulate or remediate such Hazardous Materials from the Premises or the groundwater underlying the Premises to the extent required to comply with applicable Hazardous Materials Laws.

(b) Prior to performing any such Hazardous Materials response actions reference in subparagraph (a) above, Tenant shall prepare for Landlord's review, comment and approval a Hazardous Materials response plan in compliance with applicable Hazardous Materials Laws and the provisions of this Lease. Landlord shall provide any comments on such response plan within ten (10) days of receipt thereof. If not approved by Landlord in the form submitted by Tenant, Tenant shall revise such response plan within ten (10) days of receipt of Landlord's comments to address any commercially reasonable comments of Landlord and resubmit to Landlord for its review, comment and approval. If Landlord does not approve or comment on any response plan within the aforesaid time period, such response plan shall be deemed approved. Tenant shall not take any required response action in response to any Tenant's Contamination in or about the Premises or enter into any settlement agreement, consent, decree or other compromise in respect to any claims relating to any Tenant's Contamination without first submitting a response plan to Landlord for its review, comment and approval in accordance with this Section 12.3(b). Landlord's approval shall not be required to the extent the delay caused by the requirement to obtain consent may increase the damage to the Premises or the risk of harm to human health, safety, the environment or security caused by the Tenant's Contamination.

(c) In addition to all other rights and remedies of Landlord hereunder, if Tenant does not, within thirty (30) days following receipt of written notice from Landlord, commence and thereafter diligently pursue all commercially reasonable steps to: (i) prepare and obtain all necessary approvals of a response plan for any Tenant's Contamination; (ii) thereafter commence the required response action for any Hazardous Materials released or discharged in connection with Tenant's Contamination within thirty (30) days after all necessary approvals and consents have been obtained; and (iii) thereafter continue to prosecute such remediation or other response action to completion in accordance with the approved response plan, then Landlord shall have the right, but not the obligation, to cause such response action to be accomplished, and Tenant shall reimburse Landlord for all amounts reasonably paid by Landlord, when such demand is accompanied by proof of payment by Landlord of the amounts demanded.

(d) If requested in writing by Landlord, Tenant shall promptly deliver to Landlord, copies of hazardous waste manifests reflecting the legal and proper disposal of all Hazardous Materials removed from the Premises as part of Tenant's remediation of any Tenant's Contamination. The foregoing notwithstanding, "Tenant's Contamination" shall not refer to or include: (i) any Hazardous Materials that were not introduced to the Premises by Tenant or Tenant Parties; or (ii) Hazardous Materials on or about the Premises that are not creating a material risk to individuals accessing the Premises. As an example, if lead dust or asbestos are found on the Premises, unless there is evidence that Tenant introduced those Hazardous Materials to the Premises or they were dislodged by a Tenant Alteration, or they are in a non-friable condition, those Hazardous Materials shall not be considered "Tenant's Contamination," and it shall not be Tenant's responsibility to take pro-active remedial action relating to such Hazardous Materials.

12.4 Environmental Permits.

(a) Tenant shall provide prior written notice to Landlord of all environmental permits and permit applications required for any of Tenant's operations or activities. The Parties

agree to work cooperatively to enable Tenant to obtain any environmental permits required for Tenant's operations under this Lease. However, Tenant and Tenant Parties shall be solely responsible for obtaining and complying with, at their cost and sole expense, any environmental permits required for Tenant's operations under this Lease, independent of any existing permits held by Landlord. Tenant shall strictly comply with any and all environmental permits (including any hazardous waste permit required under the Resource Conservation and Recovery Act or its state equivalent) and must provide, at its own expense, any hazardous waste management facilities complying with all Hazardous Material Laws.

(b) Tenant shall not conduct operations or activities under any environmental permit that names Landlord as a secondary discharger or co-permittee. Tenant acknowledges that Landlord will not consent to being named a secondary discharger or co-permittee for any operations or activities of Tenant, its contractors, assigns or subtenants.

12.5 Landlord's Inspection Right. Landlord shall have the right to inspect, upon reasonable notice to Tenant, the Premises for Tenant's compliance with this Article 12. Landlord normally will give Tenant twenty-four (24) hours' prior notice of its intention to enter the Premises unless it determines the entry is required for exigent circumstances related to health, safety, or security; provided, however, Landlord agree to use its best commercial efforts to provide Tenant with the maximum advance notice of any such entrance and will, without representation or warranty, attempt to structure such entrance in the least intrusive manner possible. Tenant shall have no claim against Landlord, or any officer, agent, employee, contractor or subcontractor of Landlord by reason of entrance of such Landlord officer, agent, employee, contractor or subcontractor onto the Premises.

12.6 Hazardous Materials Handling Plan.

(a) Prior to the execution of this Lease, Tenant shall complete, execute and deliver to Landlord an Environmental Questionnaire Disclosure Statement (the "**Environmental Questionnaire**"), in the form of **Exhibit C** attached hereto and shall require any Subtenant who will bring to, or use at the Premises, any Hazardous Materials to also execute and deliver to Landlord an Environmental Questionnaire. To the extent Tenant intends to store, use, treat or dispose of Hazardous Materials on the Premises, Tenant shall prepare and submit together with the Environmental Questionnaire a Hazardous Materials Handling Plan (the "**Hazardous Materials Handling Plan**").

(b) For a period of fifteen (15) days following Landlord's receipt of the Environmental Questionnaire and Hazardous Materials Handling Plan, if applicable, Landlord shall have the right to approve or disapprove such documents, such approval not to be unreasonably withheld. The failure of Landlord to approve such documents shall be deemed Landlord's disapproval thereof. Landlord approval of the Environmental Questionnaire and the Hazardous Materials Handling Plan shall constitute approval for Tenant's use of the Hazardous Materials set forth therein in compliance with Hazardous Materials Laws and the Hazardous Materials Handling Plan.

(c) Following approval of the Hazardous Materials Handling Plan, Tenant shall comply with the Hazardous Materials Handling Plan throughout the Term. To the extent

Tenant is permitted to utilize Hazardous Materials upon the Premises, such use shall be limited to the items of the general type identified on Tenant's response to the Environmental Questionnaire, shall comply with Hazardous Materials Laws and the Hazardous Materials Handling Plan and Tenant shall promptly following issuance or receipt, as applicable, provide Landlord with complete and legible copies of all the following environmental items relating thereto: (i) reports filed with public agencies pursuant to any self-reporting requirements; (ii) final permit applications, (iii) final environmental permits issued by public agencies; (iv) monitoring reports required by and submitted to public agencies; (v) workplace exposure and community exposure warnings or notices received by third parties; and (vi) all other reports, disclosures, plans or documents relating to water discharges, air pollution, waste generation or disposal, and underground storage tanks for hazardous materials; (vii) reports, notices, listing and correspondence of or concerning the release, investigation of, compliance, cleanup, remedial and corrective actions, and abatement of hazardous materials; and (viii) all complaints, pleadings and other legal documents filed by or against Tenant related to Tenant's use, handling, storage or disposal of Hazardous Materials.

(d) If, in conjunction with Tenant's Permitted Use of the Premises, Tenant desires to commence the use, treatment, storage or disposal of previously undisclosed Hazardous Materials, prior to such usage thereof, Tenant shall notify Landlord thereof, by written summary detailing the scope of such proposed usage and updating the Hazardous Materials Handling Plan to the extent required by such proposed usage. For a period of fifteen (15) days following Landlord's receipt of such notice, Landlord shall have the right to approve or disapprove of such documents, but may not unreasonably withhold approval. The failure of Landlord to approve of such documents within such time period shall be deemed Landlord's disapproval thereof.

12.7 Hazardous Materials Indemnity. In addition to any other provisions of this Lease, Tenant shall, and does hereby agree, to, indemnify and hold harmless Landlord from any costs, expenses, liabilities, fines or penalties resulting from discharges, emissions, spills, storage or disposal arising from Tenant's occupancy, use or operations, or any other action by Tenant or its contractors, employees, agents, assigns, invitees, or subtenants giving rise to liability, civil or criminal, or any other action by Tenant or its contractors, employees, agents, assigns, or subtenants giving rise to responsibility under any Hazardous Materials Laws. Tenant's obligations hereunder shall apply whenever Landlord incurs costs or liabilities for Tenant's activities or for the activities of Tenant's contractors, employees, agents, assigns, invitees, or subtenants as provided hereunder. Notwithstanding the above, Landlord shall promptly notify Tenant in writing prior to incurring material costs related to this indemnification obligation, so that Tenant may have an opportunity to respond accordingly and minimize or mitigate Landlord's indemnifiable costs. This provision shall survive the expiration or termination of this Lease but shall not extend beyond any applicable statute of limitations periods.

13. ASSIGNMENT AND SUBLETTING.

13.1 Landlord Consent Required. Subject to Section 13.5 below, Tenant shall not voluntarily or by operation of law, (a) mortgage, pledge, hypothecate or encumber this Lease or any interest therein, or (b) assign or transfer this Lease or any interest herein, sublease the Premises or any part thereof or any right or privilege appurtenant thereto, or allow any other person (the employees and invitees of Tenant excepted) to occupy or use the Premises, or any

portion thereof, without first obtaining the prior written consent of Landlord, which Landlord may withhold at its sole discretion.

13.2 Landlord Recapture. In the event of an assignment of this Lease or subletting of more than twenty percent (20%) of the rentable square footage of the Premises, Landlord shall have the right to recapture the portion of the Premises that Tenant is proposing to transfer. If Landlord exercises its right to recapture, this Lease shall automatically be amended (or terminated if the entire Premises is being assigned or sublet) to delete the applicable portion of the Premises effective on the proposed effective date of the Transfer, although Landlord may require Tenant to execute a reasonable amendment or other document reflecting such reduction or termination.

13.3 Reasonable Consent. If Tenant intends to assign this Lease or sublet the Premises or any part thereof, Tenant shall give Landlord written notice of such intent ("**Transfer Notice**"). Tenant's Transfer Notice shall be accompanied by a copy of the proposed assignment or sublease between Tenant and the proposed assignee or subtenant, together with current and three (3) years' prior financial statements, if available, for the proposed assignee or subtenant, which financial statement shall be prepared in accordance with generally accepted accounting principles. Tenant shall provide Landlord with any additional information or documentation reasonably requested by Landlord within ten (10) business days after receiving Landlord's request. Landlord shall then have a period of thirty (30) days following receipt of such additional information (or 30 days after receipt of Tenant's Transfer Notice if no additional information is requested) within which to notify Tenant in writing that Landlord elects either (a) to exercise its recapture rights in accordance with Section 13.2 in which event Tenant will be relieved of all further obligations hereunder as to such space as of the date specified in Landlord's notice terminating the Lease with respect to the relevant space, (b) to permit Tenant to assign this Lease or sublet such space as described in the Transfer Notice, subject, however, to prior written consent to the proposed assignment or sublease or (c) deny Tenant's request to assign this Lease or sublet such space. Among other factors upon which Landlord may base a withholding of consent are the following: (i) the use of the Premises by such proposed assignee or subtenant would not be a Permitted Use; (ii) the financial condition of the proposed assignee or subtenant is such that, in Landlord's reasonable determination, it would be unable to perform its obligations under the proposed sublease or assignment; (iii) the portion of the Premises proposed to be sublet is irregular in shape and/or does not permit safe or otherwise appropriate means of ingress and egress, or does not comply with other Laws or regulations; (iv) Landlord or Landlord's agents have negotiated with the proposed assignee or subtenant with regard to the leasing of space at the Premises, at any time within the preceding six (6) months; or (v) any other reasonable basis that Landlord may assert.

13.4 Transfer Premium. If Landlord consents to any requested assignment or sublease (each a "**Transfer**") and the assignee or subtenant pays to Tenant an amount in excess of the Rent due under this Lease (after deducting Tenant's reasonable, actual expenses in obtaining such assignment or sublease, such expenses being limited to (a) any Alterations to the subject space made in order to achieve the Transfer, or contributions to the cost thereof, amortized in equal monthly installments over the then remainder of the Term and (b) any commercially reasonable brokerage commissions, reasonable attorneys' fees and reasonable advertising and marketing costs incurred by Tenant in connection with the Transfer) ("**Transfer Premium**").

Tenant shall pay fifty percent (50%) of such Transfer Premium to Landlord as and when the monthly payments are received by Tenant.

13.5 No Release. No Transfer shall release or discharge Tenant of or from any liability, whether past, present or future, under this Lease, and Tenant shall continue to be fully liable hereunder. Each subtenant or assignee shall agree, in a form reasonably satisfactory to Landlord, to comply with and be bound by all of the terms, covenants, conditions, provisions and agreements of this Lease. The assignment or sublease agreement, as the case may be, after approval by Landlord, shall not be amended without Landlord's prior written consent, and shall contain a provision directing the assignee or subtenant to pay the rent and other sums due thereunder directly to Landlord upon receiving written notice from Landlord that Tenant is in Default under this Lease with respect to the payment of Rent. In the event that, notwithstanding the giving of such notice, Tenant collects any rent or other sums from the assignee or subtenant, then Tenant shall hold such sums in trust for the benefit of Landlord and shall immediately forward the same to Landlord. Landlord's collection of such rent and other sums shall not constitute an acceptance by Landlord of attornment by such assignee or subtenant. Tenant shall deliver to Landlord promptly after execution an executed copy of each Transfer and an agreement of compliance by each such subtenant or assignee.

13.6 Expenses and Attorneys' Fees. Tenant shall pay to Landlord all costs and expenses (including without limitation, the fees of Landlord's counsel) incurred in connection Landlord's review and processing of documents regarding any proposed Transfer (which under no circumstances shall be less than $750 per proposed Transfer).

13.7 Limitations on Transfer Reasonable. Tenant acknowledges and agrees that the restrictions, conditions, and limitations imposed by this Article 13 on Tenant's ability to assign or transfer this Lease or any other interests herein, to sublet the Premises or any part thereof, are, for purposes of California Civil Code Section 1951.4, as amended from time to time, and for all other purposes, reasonable at the time this Lease was entered into and shall be deemed to be reasonable at the time that Tenant seeks to assign or transfer this Lease or any interest herein, to sublet the Premises or any part thereof, or transfer or assign any right or privilege appurtenant to the Premises.

14. INDEMNITY AND WAIVER OF CLAIMS.

14.1 Tenant Indemnification. Tenant shall indemnify, defend and hold Landlord and its trustees, members, principals, beneficiaries, partners, officers, directors, employees, property managers, mortgagees, contractors and agents ("**Landlord Related Parties**") harmless against and from all liabilities, obligations, damages, penalties, claims, actions, costs, charges, judgment and expenses (including reasonable attorneys' fees, costs and disbursements) in respect of injury to or death of natural persons or damage to tangible property of third parties (collectively referred to as "**Losses**") arising from (a) the use of, or any activity done, permitted or suffered in or about the Premises, (b) any negligent act or omission or willful misconduct of Tenant or Tenant's agents or contractors in or about the Land, except to the extent such claims arise out of or relate to the negligence or willful misconduct of Landlord or Landlord's agents or contractors or (c) any alleged non-compliance of the facilities owned by Tenant and located on the Premises with the ADA. If any action or proceeding is brought against Landlord by reason of any such

claim, upon notice from Landlord, Tenant shall defend the same at Tenant's expense by counsel reasonably satisfactory to Landlord; provided, however, that with respect to any Losses arising with respect to clause (c) of the immediately preceding sentence, Landlord may require Tenant to accept a full and complete settlement of the claim or action giving rise to such Losses which settlement does not require Tenant to contribute (including both direct payments to the claimant and indemnification of Landlord Related Parties) in the aggregate more than Fifty Thousand Dollars ($50,000).

14.2 Landlord Indemnification. Landlord shall indemnify, defend and hold Tenant and its trustees, members, principals, beneficiaries, partners, officers, directors, employees, property managers, mortgagees, contractors and agents ("**Tenant Related Parties**") harmless against and from all Losses arising from any negligent act or omission or willful misconduct of Landlord or Landlord's agents or contractors in or about the Premises or the Land, except to the extent such claims arise out of or relate to the negligence or willful misconduct of Tenant or Tenant's agents or contractors. If any action or proceeding is brought against Tenant by reason of any such claim, upon notice from Tenant, Landlord shall defend the same at Landlord's expense by counsel reasonably satisfactory to Tenant.

14.3 Survival/No Impairment. The obligations of the Parties under this Article 14 shall survive any termination of this Lease. The foregoing indemnity obligations shall not relieve any insurance carrier of its obligations under any policies required to be carried by either party pursuant to this Lease, to the extent that such policies cover the peril or currents that results in the claims that is subject to the foregoing indemnity.

15. INSURANCE.

15.1 Tenant's Insurance.

(a) Liability Insurance. Tenant shall maintain in full force throughout the Term, commercial general liability insurance providing coverage on an occurrence form basis with limits of not less than Four Million Dollars ($4,000,000.00) each occurrence for bodily injury and property damage combined, or such larger amount as Landlord may prudently require from time to time, covering bodily injury and property damage liability and product liability if a product is sold from the Premises. Each policy of liability insurance required by this Section 15.1(a) shall: (i) contain a cross liability endorsement or separation of insureds clause; (ii) provide that any waiver of subrogation rights or release prior to a loss does not void coverage; (iii) provide that it is primary to and not contributing with, any policy of insurance carried by Landlord covering the same loss; and (iv) provide that any failure to comply with the reporting provisions shall not affect coverage provided to Landlord, its partners, property managers and Mortgagees; and such other parties in interest as Landlord may from time to time reasonably designate to Tenant in writing, as additional insureds in an Additional Insured Endorsement. Such additional insureds shall be provided at least the same extent of coverage as is provided to Tenant under such policies. The additional insured endorsement shall be in a form at least as broad as endorsement form number CG 20 11 01 96 promulgated by the Insurance Services Office.

(b) Personal Property Insurance. Tenant shall maintain in full force and effect on all of its personal property, furniture, furnishings, trade fixtures and equipment from time to time located in, on or upon the Premises ("**Tenant's Property**"), and any Alterations (as defined in Article 10) in an amount not less than one hundred percent (100%) of their full replacement value from time to time during the Term, providing protection against all perils, included within the standard form of "all-risk" (i.e., "Special Cause of Loss") fire and casualty insurance policy. Landlord shall have no interest in the insurance upon Tenant's Property or Alterations and will sign all documents reasonably necessary in connection with the settlement of any claims or loss by Tenant. Landlord will not carry insurance on Tenant's Property or Alterations.

(c) Worker's Compensation Insurance; Employer's Liability Insurance. Tenant shall, at Tenant's expense, maintain in full force and effect during the Term of this Lease, worker's compensation insurance with not less than the minimum limits required by law

15.2 Requirements For All Policies. Each policy of insurance required under Section 15.1 shall: (a) be in a form, and written by an insurer, reasonably acceptable to Landlord, (b) be maintained at Tenant's sole cost and expense, and (c) require at least thirty (30) days' written notice to Landlord prior to any cancellation, nonrenewal or modification of insurance coverage. Insurance companies issuing such policies shall have rating classifications of "A-" or better and financial size category ratings of "VII" or better according to the latest edition of the Best Key Rating Guide. All insurance companies issuing such policies shall be admitted carriers licensed to do business in the state where the Property is located. Any deductible amount under such insurance shall not exceed $25,000. Tenant shall provide to Landlord, upon request, evidence that the insurance required to be carried by Tenant pursuant to this Article 15, including any endorsement affecting the additional insured status, is in full force and effect and that premiums therefor have been paid. Tenant shall, at least thirty (30) days prior to expiration of each policy, furnish Landlord with certificates of renewal thereof and shall provide Landlord with at least thirty days prior written notice of any cancellation or modification.

15.3 Certificates of Insurance. Upon execution of this Lease by Tenant, and not less than thirty (30) days prior to expiration of any policy thereafter, Tenant shall furnish to Landlord a certificate of insurance reflecting that the insurance required by this Article 15 is in force, accompanied by an endorsement(s) showing the required additional insureds satisfactory to Landlord in substance and form.

16. DAMAGE OR DESTRUCTION.

If the whole or if any material part of Tenant's improvements on the Premises is damaged or destroyed, Tenant shall, to the extent proceeds of insurance policies are available therefor, repair and restore it as nearly as possible to its value, condition and character immediately prior to such damage or destruction, subject to such changes or alterations as may be made at Tenant's election provided, however, that such changes or alterations do not interfere with or reduce the capacity of the Premises to serve the Permitted Use. Such restoration shall be commenced and prosecuted with due diligence and in good faith. All proceeds from insurance insuring interests of Tenant in its improvements at the Premises with respect to a casualty occurring on or after the Commencement Date shall be applied to effect such repairs and restorations, but if proceeds (less the amount of any deductible) after the exercise of commercially reasonable efforts by Tenant to

maximize recovery are not sufficient to pay the entire costs of repair and restoration, Tenant may, at its option, within a reasonable time after the casualty (a) proceed to repair and restore the improvements at the Premises and pay the amount of all repairs and restoration costs in excess of such insurance proceeds, (b) repair and construct improvements at the Premises for the purpose of serving the Permitted Use to the maximum extent reasonably practicable in light of actual recovery of insurance proceeds, or (c) elect not to make such repairs, whereupon any available insurance proceeds shall be applied to restore the site and thereafter this Lease shall terminate and Tenant may retain the remaining proceeds of such insurance received by or payable to it.

17. CONDEMNATION.

If the whole or if any material part of the Premises is taken or condemned for any public or quasi-public use under either state or federal law, by eminent domain or purchase in lieu thereof (a "**Taking**") and such Taking renders the Premises unsuitable for the Permitted Use, then Landlord may, at its option, terminate this Lease as of the date possession vests in the condemning party. If twenty-five percent (25%) or more of the Premises is taken and if the Premises remaining after such Taking are unsuitable for the Permitted Use, Tenant shall have the right to terminate this Lease as of the date possession vests in the condemning party. The terminating party shall provide written notice of termination to the other party within ten (10) days after it first receives notice of the Taking. The termination shall be effective as of the effective date of any order granting possession to, or vesting legal title in, the condemning authority. If this Lease is not terminated, Base Rent shall be appropriately adjusted to account for any reduction in the square footage of the Premises. If only a part of the Premises is subject to a Taking and this Lease is not terminated, Tenant may with reasonable diligence use the net proceeds of the Taking to restore the remaining portion of the Premises to the extent practicable given the proceeds of the Taking to serve the Permitted Use.

18. DEFAULT.

18.1 Events of Default. The occurrence of any of the following shall constitute a "**Default**" by Tenant:

(a) Tenant fails to make any payment of Rent when due, if payment in full is not received by Landlord within fifteen (15) days after written notice that it is past due.

(b) Tenant abandons the Premises as defined in Section 1951.3 of the California Civil Code.

(c) Tenant fails timely to deliver any subordination document or estoppel certificate, in either case in respect of a leasehold deed of trust or other encumbrance of the Premises incurred by Tenant, requested by Landlord within the applicable time period specified hereinbelow.

(d) Tenant violates the restrictions on Transfer set forth in Article 13.

(e) Tenant ceases operations to serve the Permitted Use; makes an assignment for the benefit of creditors; is adjudicated an insolvent, files a petition (or files an answer admitting the material allegations of a petition) seeking relief under any state or federal

bankruptcy or other statute, law or regulation affecting creditors' rights; all or substantially all of Tenant's assets are subject to judicial seizure or attachment and are not released within thirty (30) days, or Tenant consents to or acquiesces in the appointment of a trustee, receiver or liquidator for Tenant or for all or any substantial part of Tenant's assets.

(f) Tenant fails to perform or comply with any provision of this Lease other than those described in (a) through (e) above, and does not fully cure such failure within thirty (30) days after notice to Tenant or, if such failure cannot reasonably be cured within such thirty (30) day period, Tenant fails within such thirty (30)-day period to commence, and thereafter diligently proceed with, all actions necessary to cure such failure as soon as reasonably possible but in all events within one hundred eighty (180) days of such notice.

(g) Tenant fails to satisfy any indemnification obligation under clause (c) of the first sentence of Section 14.1 with respect to a final and non-appealable judgment against Landlord within a period of twelve months from the date of such judgment; provided, however, that Landlord has not interfered with Tenant's defense of the claim or action giving rise to such judgment.

18.2 Remedies. Upon the occurrence of any Default under this Lease, Landlord shall have the option to pursue any one or more of the following remedies without any notice (except as expressly prescribed herein) or demand whatsoever. Without limiting the generality of the foregoing, Tenant hereby specifically waives notice and demand for payment of Rent or other obligations, and waives any and all other notices or demand requirements imposed by applicable Law:

(a) Terminate this Lease and Tenant's right to possession of the Premises and recover from Tenant an award of damages equal to the sum of the following:

(i) The Worth at the Time of Award of the unpaid Rent which had been earned at the time of termination;

(ii) The Worth at the Time of Award of the amount by which the unpaid Rent which would have been earned after termination until the time of award exceeds the amount of such Rent loss that Tenant affirmatively proves could have been reasonably avoided; and

(iii) The Worth at the Time of Award of the amount by which the unpaid Rent for the balance of the Term after the time of award exceeds the amount of such Rent loss that Tenant affirmatively proves could be reasonably avoided discounted to the then present value.

The "**Worth at the Time of Award**" of the amounts referred to in parts (i) and (ii) above, shall be computed by allowing interest at the lesser of a per annum rate equal to the Prime Rate as published in the Wall Street Journal plus 5%, and as referred to in part (iii) above, shall be computed by discounting such amount at the discount rate of the Federal Reserve Bank of San Francisco at the time of the award plus one percent (1%).

(b) Employ the remedy described in California Civil Code § 1951.4 (Landlord may continue this Lease in effect after Tenant's breach and abandonment and recover Rent as it becomes due, if Tenant has the right to sublet or assign, subject only to reasonable limitations); or

(c) Notwithstanding Landlord's exercise of the remedy described in California Civil Code § 1951.4 in respect of an event or events of Default, at such time thereafter as Landlord may elect in writing, to terminate this Lease and Tenant's right to possession of the Premises and recover an award of damages as provided above.

18.3 No Waiver. The subsequent acceptance of Rent hereunder by Landlord shall not be deemed to be a waiver of any preceding breach by Tenant of any term, covenant or condition of this Lease, other than the failure of Tenant to pay the particular Rent so accepted, regardless of Landlord's knowledge of such preceding breach at the time of acceptance of such Rent. No waiver by Landlord of any breach hereof shall be effective unless such waiver is in writing and signed by Landlord.

18.4 Remedies Cumulative. No right or remedy herein conferred upon or reserved to Landlord is intended to be exclusive of any other right or remedy, and each and every right and remedy shall be cumulative and in addition to any other right or remedy given hereunder or now or hereafter existing by agreement, applicable Law or in equity. In addition to other remedies provided in this Lease, Landlord shall be entitled, to the extent permitted by applicable Law, to injunctive relief, or to a decree compelling performance of any of the covenants, agreements, conditions or provisions of this Lease, or to any other remedy allowed to Landlord at law or in equity. Forbearance by Landlord to enforce one or more of the remedies herein provided upon an event of Default shall not be deemed or construed to constitute a waiver of such Default.

18.5 Severability. This Article 18 shall be enforceable to the maximum extent such enforcement is not prohibited by applicable Law, and the unenforceability of any portion thereof shall not thereby render unenforceable any other portion.

19. LIMITATION OF LIABILITY.

Notwithstanding anything to the contrary contained in this Lease, the liability of Landlord (and of any successor landlord) shall be governed by applicable state and federal laws for so long as Landlord is a public entity and, at any time thereafter, shall be limited to [_____].

20. RENEWAL OR EXTENSION.

Commencing as soon as reasonably practicable following the date that is twelve (12) months prior to the Expiration Date and continuing until the Expiration Date, the Parties shall meet, confer and negotiate concerning a renewal or extension of this Lease; provided, however, that any such agreement to such renewal or extension shall be within the sole discretion of each Party.

21. SURRENDER OF PREMISES.

Following the termination of this Lease or Tenant's right of possession, if within one (1) year thereafter Landlord and Tenant are unable to reach agreement on a lease extension or renewal, Landlord may at its election require Tenant to, and Tenant may at its own option, surrender the Premises with all improvements as-is, where-is, and without any representation or warranty as to condition or quality whatsoever, and in such case Landlord shall, within ninety (90) days following the date of surrender pay to Tenant the fair market value, as of such date of surrender, of all improvements constructed on the Premises by Tenant. Such fair market value shall be determined on the same basis as if such surrender were an involuntary Taking of Tenant's property.

22. HOLDING OVER.

If Tenant fails to surrender all or any part of the Premises at the termination of this Lease, occupancy of the Premises after termination shall be that of a tenancy at sufferance. Tenant's occupancy shall be subject to all the terms and provisions of this Lease and Tenant shall pay an amount (on a per month basis without reduction for partial months during the holdover) equal to 200% of the sum of the Base Rent due for the period immediately preceding the holdover. No holding over by Tenant shall operate to extend the Term. Any holding over by Tenant with the written consent of Landlord shall thereafter constitute a lease from month to month.

23. NOTICE.

All notices shall be in writing and delivered by hand or sent by registered, express, or certified mail, with return receipt requested or with delivery confirmation requested from the U.S. postal service, by email, or sent by overnight or same day courier service at the party's respective Notice Address(es) set forth in the Basic Lease Information ("**Notice Address**"). Each notice shall be deemed to have been received on the earlier to occur of actual delivery. Either party may, at any time, change its Notice Address by giving the other party written notice of the new address.

24. LABOR PROVISIONS.

24.1 Equal Opportunity. During the Term, and with respect to person(s) in the Premises or employment or employees at the Premises, Tenant agrees as follows:

(a) Tenant will not discriminate against any guest, visitor, invitee, customer or employee of Tenant or applicant for employment because of employment because of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, genetic information, marital status, sex, gender identity, gender expression, age, sexual orientation, or military and veteran status. The employees of Tenant shall be treated during employment, without regard to their employment because of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, genetic information, marital status, sex, gender identity, gender expression, age, sexual orientation, or military and veteran status. Such action shall include, but not be limited to, the following: employment, upgrading demotion, or transfer, recruitment or recruitment advertising, layoff or termination, rate of pay or other forms of compensation, selection for training, including

apprenticeship. Tenant agrees to post in conspicuous places, notices to be provided by the applicable government agencies, setting forth the provisions of this nondiscrimination provision.

(b) Tenant will, in all solicitations or advertisements for employees placed by or on behalf of Tenant, state that all qualified applicants will receive consideration for employment without regard to employment because of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, genetic information, marital status, sex, gender identity, gender expression, age, sexual orientation, or military and veteran status.

(c) Tenant will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding a notice, advising the labor union or worker's representative of Tenant's commitments under this Equal Opportunity Clause and shall post copies of notice in conspicuous places available to employee and applications for employment.

(d) Tenant, through any approved sublease, shall require each of its subtenants to comply with the nondiscrimination provisions contained in this Section 24.1.

24.2 Convict Labor. In connection with the performance of work required by this Lease, Tenant agrees not to employ any person undergoing a sentence of imprisonment at hard labor.

24.3 Prevailing Wages and Related Requirements. Tenant acknowledges and agrees any Alterations made by or on behalf of Tenant to the Premises, or any portion thereof, which are paid for in whole or in part by Landlord or which are considered to have been paid for in whole or in part by Landlord (e.g. by virtue of any rents that are reduced, waived or forgiven) will constitute "[c]onstruction, alteration, demolition, installation, or repair work done under contract and paid for in whole or in part out of public funds…" (collectively, "**Publicly Funded Alterations**"). (California Labor Code section 1720.) Tenant shall comply with any applicable laws, rules and regulations related to construction wages and other construction matters, if and to the extent applicable to the Premises after the Commencement Date including, but not limited to, the provision of Labor Code Section 1720 et seq., and/or Section 2-67 of the Alameda Municipal Code. From and after the Commencement Date, and solely with respect to Publicly Funded Alterations, Tenant shall indemnify, defend (with counsel reasonably acceptable to Landlord), and hold harmless the Landlord Related Parties against any claim for damages, compensation, fines, penalties or other amounts arising out of the failure or alleged failure of any person or entity (including Tenant and its contractors) to pay prevailing wages as determined pursuant to Labor Code Sections 1720 et seq., to employ apprentices pursuant to Labor Code Sections 1777.5 et seq., to require any contractor or subcontractor listed on a bid proposal for a public works project be registered with the Department of Industrial Relations pursuant to Labor Code Section 1725.5, to comply with the other applicable provisions of Labor Code Sections 1720 et seq. and 1777.5 et seq., to meet the conditions of Section 1771.4 of the Labor Code, to require the general contractor for any prevailing wage work to furnish electronic certified payroll records directly to the Labor Commissioner at: https://apps.dir.ca.gov/ecpr/das/altlogin, or to comply with any other regulation related to public contracts. For clarity, the immediately preceding sentence shall not apply in respect of any Alternations which are not Publicly Funded

Alterations. Tenant's obligation to indemnify, defend and hold harmless under this Section 26.3 shall survive termination of this Lease, and shall be interpreted broadly so as to apply to any legal or administrative proceeding, arbitration, or enforcement action.

25. MISCELLANEOUS.

25.1 Governing Law. This Lease shall be interpreted and enforced in accordance with the Laws of the State of California and Landlord and Tenant hereby irrevocably consent to the jurisdiction and proper venue of such state.

25.2 Severability. If any section, term or provision of this Lease is held invalid by a court of competent jurisdiction, all other sections, terms or severable provisions of this Lease shall not be affected thereby, but shall remain in full force and effect.

25.3 Force Majeure. Whenever a period of time is prescribed for the taking of an action by Landlord or Tenant (other than the payment of Rent), the period of time for the performance of such action shall be extended by the number of days that the performance is actually delayed due to strikes, acts of God, shortages of labor or materials, war, terrorist acts, pandemics, civil disturbances, extreme weather and other causes beyond the reasonable control of the performing party ("**Force Majeure**").

25.4 Signs. Other than the signage described in Section 7.2, or any signs that exist on the Commencement Date or reasonably equivalent replacements thereof, Tenant shall not place any sign upon the Premises without Landlord's prior written consent or as provided in this Section 25.4,. All signage shall comply with Landlord's reasonable criteria, which must be appropriate to serve the Permitted Use. In addition, the general style, size, materials and attachment method of any such signage shall be subject to Landlord's prior written consent, provided that any such requirements of landlord do not result in undue cost or expense to Tenant. The installation of any sign on the Premises by or for Tenant, other than those that exist on the Commencement Date or reasonably equivalent replacements thereof, shall be subject to the provisions of this Lease. Tenant shall maintain any such signs installed on the Premises. Neither Party shall install any advertising signs on the Premises, including the roof. Notwithstanding the preceding language, Tenant shall be permitted to post a reasonable number of signs within the Premises as needed for safety purposes.

25.5 Brokers. Landlord and Tenant each represents and warrants to the other that neither it nor its officers or agents nor anyone acting on its behalf has dealt with any real estate broker except the Broker(s) specified in the Basic Lease Information in the negotiating or making of this Lease. Each party agrees to indemnify, defend and hold harmless the other from any claim or claims, and costs and expenses, including attorneys' fees, incurred by the indemnified party in conjunction with any such claim or claims of any other broker or brokers to a commission in connection with this Lease as a result of the actions of the indemnifying party. Provided that this Lease is fully executed by the parties hereto, Landlord shall pay a commission to Landlord's Broker pursuant to a separate written agreement between Landlord and Landlord's Broker, and Landlord's Broker shall be responsible for any fee or commission payable to Tenant's Broker, if any.

25.6 Access by Landlord. Landlord, its contractors, employees, agents and invitees shall not be entitled to enter into or upon the Premises without the prior consent of Tenant, which consent shall not be unreasonably withheld or delayed, and shall enter subject to Tenant's reasonable rules for safety and security. Landlord shall not take any action or request access to the Premises for any purpose which would materially interfere with the Permitted Use.

25.7 Article and Section Titles. The Article and Section titles use herein are not to be consider a substantive part of this Lease, but merely descriptive aids to identify the paragraph to which they referred. Use of the masculine gender includes the feminine and neuter, and vice versa.

25.8 Authority. If Tenant is a corporation, partnership, trust, association or other entity, Tenant and each person executing this Lease on behalf of Tenant does hereby covenant and warrant that (a) Tenant is duly incorporated or otherwise established or formed and validly existing under the laws of its state of incorporation, establishment or formation, (b) Tenant has and is duly qualified to do business in California, (c) Tenant has full corporate, partnership, trust, association or other power and authority to enter into this Lease and to perform all Tenant's obligations hereunder, and (d) each person (and all of the persons if more than one signs) signing this Lease on behalf of Tenant is duly and validly authorized to do so. Upon execution hereof and at Landlord's request, Tenant shall provide Landlord with a written certification of its Corporate Secretary or other appropriate authorizing officer or partner attesting that at a duly noticed meeting of its Board of Directors or other governing body a resolution has been unanimously adopted approving Tenant's execution hereof, thereby binding itself to the terms of this Lease and identifying the person(s) authorized to execute this Lease on behalf of Tenant.

25.9 Quiet Possession. Landlord covenants and agrees with Tenant that, upon Tenant's payment of Rent and observing and performing all of the terms, covenants, conditions, provisions and agreements of this Lease on Tenant's part to be observed or performed, Tenant shall have the quiet possession of the Premises throughout the Term.

25.10 Asbestos Notification for Commercial Property Constructed Before 1979. Tenant acknowledges that Landlord has advised Tenant that, because of its age, improvements constructed on the Premises by Tenant may contain asbestos-containing materials ("**ACMs**"). If Tenant undertakes any Alterations as may be permitted by Article 10, Tenant shall, in addition to complying with the requirements of Article 10, undertake the Alterations in a manner that avoids disturbing ACMs present in the Building. If ACMs are likely to be disturbed in the course of such work, Tenant shall encapsulate or remove the ACMs in accordance an approved asbestos-removal plan and otherwise in accordance with all applicable Environmental Laws, including giving all notices required by California Health & Safety Code Sections 25915-25919.7.

25.11 Lead Warning Statement. Tenant acknowledges that Landlord has advised Tenant that buildings built before 1978 may contain lead-based paints ("**LBP**"). Lead from paint, paint chips and dust can pose health hazards if not managed properly. Subject to Article 10 of this Lease, Tenant may, but shall not be required to, in any case at its sole cost and expense, have a state certified LBP Inspector complete a LBP inspection and abatement and provide an abatement certification to Landlord. Landlord has no specific knowledge of the presence of lead-based paint in the Premises.

25.12 OFAC Certification. Tenant represents, warrants and covenants that: (a) Tenant and its principals are not acting, and will not act, directly or indirectly, for or on behalf of any person, group, entity, or nation named by any Executive Order or the United States Treasury Department as a terrorist, "**Specially Designated and Blocked Person**" or other banned or blocked person, entity, nation, or transaction pursuant to any law, order, rule or regulation that is enforced or administered by the Office of Foreign Assets Control; and (b) Tenant acknowledges that the breach of this representation, warranty and covenant by Tenant shall be an immediate Default under the Lease.

25.13 Certified Access Specialist Disclosure. Inspection by Certified Access Specialist. Landlord discloses that the Premises have not undergone inspection by a Certified Access Specialist as referenced in California Civil Code Section 1938 subsection (e) which provides: "A Certified Access Specialist (CASp) can inspect the subject premises and determine whether the subject premises comply with all of the applicable construction-related accessibility standards under state law. Although state law does not require a CASp inspection of the subject premises, the commercial property owner or lessor may not prohibit the lessee or tenant from obtaining a CASp inspection of the subject premises for the occupancy or potential occupancy of the lessee or tenant, if requested by the lessee or tenant. The parties shall mutually agree on the arrangements for the time and manner of the CASp inspection, the payment of the fee for the CASp inspection, and the cost of making any repairs necessary to correct violations of construction-related accessibility standards within the premises." Pursuant to the foregoing Section 1938(e), Tenant acknowledges and agrees that, if Tenant wishes to have the Premises inspected by a CASp: (i) Tenant must notify Landlord on or before the date when Tenant executes this Lease pursuant to the election below; (ii) the inspection will be at Tenant's sole cost and expense; (iii) the inspection must be scheduled through Landlord; (iv) any repairs or modifications necessary to correct any violation of construction-related accessibility standards that is noted in the CASp report shall be Tenant's responsibility; and (v) Tenant must provide a copy of the CASp report to Landlord on completion. By initialing below, Tenant represents that:

Tenant wishes to have a CASp inspection of the Premises Initials: _____

Tenant hereby waives its right a CASp inspection of the Premises Initials: WSP

25.14 Entire Agreement. This Lease contains all of the agreements of the parties hereto with respect to any matter covered or mentioned in this Lease, and no prior agreements or understandings pertaining to any such matter shall be effective for any purpose. No provision of this Lease may be amended or added except by an agreement in writing signed by the parties hereto or their respective successors-in-interest.

25.15 Rules and Regulations. Tenant shall faithfully observe and comply with the non-discriminatory rules and regulations attached hereto as **Exhibit D** and incorporated herein by this reference, as the same may be modified from time to time by agreement of the Parties.

25.16 Financial Statement. Within thirty (30) days after Landlord's written request, Tenant shall deliver to Landlord the most recently filed IRS Form 990 of Tenant and shall be certified as accurate in all material respects by an officer of Tenant.

25.17 Counterparts. This Lease may be executed in multiple counterparts, each of which shall be deemed an original, but all of which, together, shall constitute one and the same instrument.

[*text continues on next page*]

Landlord and Tenant have executed this Lease as of the day and year first above written.

LANDLORD:

City of Alameda,
a charter city and municipal corporation

By: _____
Jennifer Ott
City Manager

Date: _____

Approved as to Form

By: DocuSigned by: Michael Roush 20775BA73AEC44C... _____
Michael H. Roush
Special Counsel

TENANT:

Alameda Swimming Pool Association,
a nonprofit organization

By: DocuSigned by: William Paden CC14DD8999214DE... _____
Name: William Paden
Title: Director
6/14/2023

Date:

By: DocuSigned by: Paul Delle Cese 39B1887DCD5C402... _____
Name: Paul Delle Cese
Title: Director
6/13/2023

Date:

EXHIBIT A

PREMISES

"**Franklin Park Site**":

BEING a parcel of land situated in the City of Alameda, County of Alameda, State of California, and further described as follows:

COMMENCING at the intersection of the northerly line of San Jose Avenue, 60 feet wide, with the westerly line of Paru Street, 60 feet wide, as said Avenue and Street are shown on "Map of Oak Park" filed October 28, 1876 at page 103, Map Book 1, Official Records of Alameda County;

THENCE westerly, along said northerly line of San Jose Avenue, 31.69 feet;

THENCE northerly, along a line parallel with said westerly line of Paru Street, 8.11 feet to the TRUE POINT OF BEGINNING;

THENCE westerly, along a line parallel with said northerly line of San Jose Avenue, 96.12 feet;

THENCE northerly, along a line parallel with said westerly line of Paru Street, 118.86 feet;

THENCE easterly, along a line parallel with said northerly line of San Jose Avenue, 96.12 feet;

THENCE southerly, along a line parallel with said westerly line of Paru Street, 118.86 feet to the TRUE POINT OF BEGINNING.

"**Lincoln Park Site**":

BEING a parcel of land in the City of Alameda, County of Alameda, State of California, said parcel being a portion of lot 34 according to the Whitcher Survey, as subdivided by J. E. Whitcher, in the survey of the reservation of Chipman and Aughinbaugh in the southern portion of the Encinal of San Antonio, made and platted in August 1852, said plat being filed in the Recorder's office of said County of Alameda, State of California, March 9th, 1863; said lot 34 being a portion of the land conveyed to the City of Alameda, California by Ivey L. Borden as the sole surviving Executor of the estate of Robert R. Thompson, deceased, by deed recorded in the Records of the County Recorder of the County of Alameda, October 23, 1908 at page 9 in liber 1541 of deeds; said parcel is further described as follows:

BEGINNING at a point on the northeasterly line of the aforesaid lot 34 distant thereon 285.5 feet southeasterly from the most northerly corner of said lot 34;

THENCE southeasterly along the northeasterly line of said lot 34 a distance of 124.5 feet;

THENCE southwesterly at right angles to said northeasterly line 124 feet;

THENCE at right angles northwesterly, parallel to said northeasterly line 110.5 feet;

THENCE at right angles northeasterly 50 feet;

THENCE at right angles northwesterly, parallel to said northeasterly line 14 feet;

THENCE at right angles northeasterly 74 feet to the POINT OF BEGINNING.

EXHIBIT A-1

LAND AREA

EXHIBIT B
COMMENCEMENT LETTER

Date: _____

Re: Lease dated as of _____, 2023, by and between City of Alameda, as Landlord, and _____, a _____, as Tenant, for _____ located at _____, Alameda, California.

Dear _____:

In accordance with the terms and conditions of the above referenced Lease, Tenant accepts possession of the Premises and agrees:

1. The Commencement Date of the Lease is _____;

2. The Expiration Date of the Lease is _____.

Please acknowledge your acceptance of possession and agreement to the terms set forth above by signing all 3 counterparts of this Commencement Letter in the space provided and returning 2 fully executed counterparts to my attention.

Sincerely	Agreed and Accepted:
Landlord: City of Alameda By: _____ Name: _____ Title:	Tenant: _____ By: _____ Name: _____ Title: _____

[Exhibit -- Do not sign]

EXHIBIT C

ENVIRONMENTAL QUESTIONNAIRE

The purpose of this form is to obtain information regarding the use, if any, of hazardous substances in the process proposed on the premises to be leased. Any such use must be approved in writing by Landlord, such approval not to be unreasonably withheld. Prospective tenants should answer the questions in light of their proposed operations on the premises. Existing tenants should answer the questions as they relate to ongoing operations on the premises and should update any information previously submitted. If additional space is needed to answer the questions, you may attach separate sheets of paper to this form.

Your cooperation in this matter is appreciated. Any questions should be directed to, and when completed, the form should be mailed to:

RiverRock Real Estate Group, Inc., as Agent for
City of Alameda
950 W. Mall Square, suite 239
Alameda, CA 94501

(510) 749-0304; (510) 749-1095 fax

1. General Information.

Name of Responding Company: Alameda Swimming Pool Association

Check the Applicable Status:

Prospective Tenant ☐ Existing Tenant ☒

Mailing Address: P.O. Box 2376, Alameda, CA 94501

Contact Person and Title: Bill Paden, Head of Maintenance / Volunteer

Telephone Number: (510) 523-7287

Address of Proposed Premises to be Leased:

1) 1450 High Street, Alameda, CA (aka the "Lincoln Park Pool"); and

2) 1432 San Antonio Street, Alameda, CA (aka the "Franklin Park Pool")

Length of Lease Term: 4 years, 11 months

Your Standard Industrial Classification (SIC) Code Number: 7990 Services – Miscellaneous & Recreation[1]

[1] The SIC code does not have a specific number for "community swimming pools." Consequently, SIC 7990 was considered to be the most accurate description of the services offered.

Describe the proposed operations to take place on the property, including principal products manufactured, services and a brief process flow description to be conducted. Existing tenants should describe any proposed changes to ongoing operations.

The Lincoln and Franklin pools will continue to operate as community swimming pools with no changes to current operations. The pools host family, lap, competitive (Alameda Ala-gators), non-competitive, free kindergarten and senior swimming events. Learning how to swim and safely participate in water activities is an incredibly important part of life. The Alameda Swimming Pool Association is an integral part of the community that aims to continue offering these services at little to no cost.

2. Use and/or Storage of Hazardous Materials.

2.1 Will any hazardous materials be used or stored onsite?

Hazardous Wastes	Yes ☐	No ☒
Hazardous Chemical Products	Yes ☒	No ☐

2.2 Attach the list of any hazardous materials/wastes to be used, stored, or generated the quantities that will be onsite at any given time, and the location and method of storage (e.g., 55-gallon drums on concrete pad).

2.3 Does your company handle hazardous materials in a quantity equal to or exceeding an aggregate of 500 pounds, 55 gallons, or 200 cubic feet?

Yes ☒ No ☐

If yes please provide Material Safety Data Sheets (MSDS) on such materials.

2.4 Has your business filed for a Consolidated Hazardous Materials Permit from the Alameda County Environmental Management Department?

Yes ☐ No ☒

If so, attach a copy of the permit application.

2.5 Are any of the chemicals used in your operations regulated under Proposition 65?

Yes ☐ No ☒

If so, describe the actions taken, or proposed to be taken, to comply with Proposition 65 requirements. N/A

2.6 Do you store or use or intend to store or use acutely hazardous materials above threshold quantities requiring you to prepare a risk management plan (RMP)?

Yes ☐ No ☒

2.7 Describe the procedures followed to comply with OSHA Hazard Communication Standard requirements.

All hazardous materials are safely stored and properly labelled. All materials are stored in their shipping containers and remain sealed when not in use. Bill is the only person who dilutes and handles hazardous materials at either facility. Access to the materials is otherwise restricted. Bill has extensive chemical training including running a chemistry lab, as well as 50 years of experience diluting pool chemicals. All relevant MSDS and Certified Pool Operator manuals are onsite and readily accessible.

3. Storage Tanks and Pumps.

3.1 Are any above or below ground storage of gasoline, diesel, or other hazardous substances in tanks or pumps being used as a part of your present process or proposed for use on this leased premises?

Yes ☒ No ☐

If yes, describe the materials to be stored, and the type, size and construction of the pump or tank. Attach copies of any permits obtained for the storage of such substances. The facilities use hydrochloric acid – 9% (40 gallons) and sodium hypochlorite – 15% (371 gallons). Both materials are stored in double walled tanks made of polyethylene. The tanks remain sealed when not in use and are only accessed by Bill.

3.2 If you have an above ground storage tank (AST), do you have a spill prevention containment and countermeasures (SPCC) plan?

Yes ☐ No ☐ Not Applicable ☒

3.3 Have any tanks, pumps or piping at you existing facilities been inspected or tested for leakage?

Yes ☐ No ☒ Not Applicable ☐
If so, attach the results.

3.4 Have any spills or leaks occurred from such tanks, pumps or piping in the past year?

Yes ☐ No ☒ Not Applicable ☐
If so, describe. _____

_____

3.5 Were any regulatory agencies notified of any spills or leaks?

Yes ☐ No ☐ Not Applicable ☒

If so, attach copies of any spill reports filed, any clearance letters or other correspondence from regulatory agencies relating to the spill or leak.

3.6 Have any underground storage tanks, sumps or piping been taken out of service or removed at the proposed facility or facilities that you operate?

Yes ☐ No ☐ Not Applicable ☒

If yes, attach copies of any closure permits and clearance obtained from regulatory agencies relating to closure and removal of such tanks.

4. Spills.

4.1 During the past year, have any spills occurred on any site you occupy?

Yes ☐ No ☒ Not Applicable ☐

If so, please describe the spill and attach the results of any process conducted to determine the extent of such spills.

4.2 Were any agencies notified in connection with such spills?

Yes ☐ No ☐ Not Applicable ☒

If no, attach copies of any spill reports or other correspondence with regulatory agencies.

4.3 Were any clean-up actions undertaken in connection with the spills?

Yes ☐ No ☐ Not Applicable ☒

If so, briefly describe the actions taken. Attach copies of any clearance letters obtained from any regulatory agencies involved and the results of any final soil or groundwater sampling done upon completion of the clean-up work N/A

5. Waste Management.

5.1 Has your business filed a Hazardous Material Plan with the Alameda County Environmental Management Department?

Yes ☐ No ☒

5.2 Has your company been issued an EPA Hazardous Waste Generator I.D. Number?

Yes ☐ No ☒

If yes: EPA ID#_____

5.3 Has your company filed a biennial report as a hazardous waste generator?

Yes ☐ No ☒

If so, attach a copy of the most recent report filed.

5.4 Are hazardous wastes stored in secondary containments?

Yes ☐ No ☒

5.5 Do you utilize subcontractors for lighting/electrical, plumbing, HVAC, pest services, landscaping and/or building maintenance services?

Yes ☒ No ☐

If yes, do any of these subcontractors store, mix or utilize chemicals on site?

Yes ☐ No ☒

If yes, what types and quantities? N/A

Attach the list of the hazardous waste, if any, generated or to be generated at the premises, its hazard class and the quantity generated on a monthly basis.

Describe the method(s) of disposal for each waste. Indicate where and how often disposal will take place. Neither facility generates hazardous waste.

Indicate the name of the person(s) responsible for maintaining copies of hazardous waste manifests completed for offsite shipments of hazardous waste. N/A

Is any treatment, processing and recycling of hazardous wastes currently conducted or proposed to be conducted at the premises:

Yes ☐ No ☒

If yes, please describe any existing or proposed treatment, processing or recycling methods. N/A

Attach copies of any hazardous waste permits or licenses issued to your company with respect to its operations on the premises.

6. Wastewater Treatment/Discharge.

6.1 Will your proposed operation require the discharge of wastewater to (answer Yes or No to each of the following)?

No	storm drain	Yes	sewer
No	surface water	No	no industrial discharge

6.2 Does your business have a Sewer Use Questionnaire on file with Alameda County Sanitation District?

Yes ☐ No ☒

6.3 Is your wastewater treated before discharge?

Yes ☒ No ☐ Not Applicable ☐

If yes, describe the type of treatment conducted.

Each facility discharges up to approximately 300 gallons a week of pool water during the summer months and around 100 gallons per week the rest of the year. The quality of the water being discharged (in terms of chemical constituents) is the equivalent of shower water. Before discharge, the chlorine is neutralized with ascorbic acid / vitamin C. This process is a regular part of commercial pool maintenance and does not present any unique hazards.

6.4 Does your business conduct operations outside the building or store materials outside? Maybe not a business. Only temporarily.

Yes ☐ No ☒ Not Applicable ☐

Alameda Swimming Association generally does not store materials outside of the pump room. However, a recent change in material provider has led to intermittent periods of outside storage. This is merely a temporary measure and will not continue once the pump room is organized to accommodate the new provider.

6.5 Do you have a Storm Water Pollution Prevention Plan (SWPPP)?

Yes ☐ No ☐ Not Applicable ☒

6.6 Does your business have a General Permit for storm water discharge associated with industrial activity?

Yes ☐ No ☐ Not Applicable ☒

6.7 Does your business operate under a National Pollution Discharge Elimination System (NPDES) Permit?

Yes ☐ No ☐ Not Applicable ☒

Attach copies of any wastewater discharge permits issued to your company with respect to its operations on the premises.

7. Air Discharges.[2]

7.1 Do you have or intend to have any air filtration systems or stacks that discharge into the air?

Yes ☐ No ☒

7.2 Do you operate or plan to operate any of the following types of equipment, or any other equipment requiring an air emissions permit (answer Yes or No to each of the following)?

Spray booth	Yes ☐ No ☒
Dip tank	Yes ☐ No ☒
Drying oven	Yes ☐ No ☒
Incinerator	Yes ☐ No ☒
Other (please describe)	Yes ☐ No ☒
Boiler	Yes ☐ No ☒
I/C Engine	Yes ☐ No ☒
Emergency Backup Generator	Yes ☐ No ☒
Processes that apply coatings, inks, adhesives or use solvents	Yes ☐ No ☒

7.3 Do you emit or plan to emit any toxic air contaminates?

[2] NOTE: Businesses will have to comply with prohibitory rules regardless of whether they have or need a permit.

Yes ☐ No ☒

7.4 Are air emissions from your operations monitored?

Yes ☐ No ☒

If so, indicate the frequency of monitoring and a description of the monitoring results. N/A

Attach copies of any air emissions permits pertaining to your operations on the premises.

8. Enforcement Actions, Complaints. no

8.1 Has your company, within the past five years, ever been subject to any agency enforcement actions, administrative orders, or consent decrees?

Yes ☐ No ☒

If so, describe the actions and any continuing compliance obligations imposed as a result of these actions. N/A

8.2 Has your company ever received requests for information, notice or demand letters, or any other inquiries regarding its operations?

Yes ☐ No ☒

8.3 Have there ever been, or are there now pending, any lawsuits against the company regarding any environmental or health and safety concerns?

Yes ☐ No ☒

8.4 Has any environmental audit ever been conducted at your company's current facility?

Yes ☐ No ☒

If so, discuss the results of the audit. N/A

8.5 Have there been any problems or complaints from neighbors at the company's current facility?

Yes ☒ No ☐

Please describe: Swim meets and summer break can be very exciting. Over the years, a few neighbors have on rare occasion complained about noise levels. However, all events end by 10 pm and swim meets are scheduled during the middle of the day. The facilities are located in public parks, so noise is also attributed to park-goers. The facilities have been a community staple for over 60 years.

The undersigned hereby certifies that all of the information contained in this questionnaire is accurate and correct.

Alameda Swimming Pool Association
a California nonprofit public benefit corporation

By: William S Fodor

Title: Head of Maintenance / Volunteer

Date: 9/20/23

List of Hazardous Materials Used at the Facilities

1. Sodium Hypochlorite (bleach) – 15%
    a. Up to 371 gallons
    b. Stored in a locked pump room
    c. Stored in a double-walled polyethylene tank
    d. Properly labelled and sealed
    e. MSDS onsite
    f. Mixed on cement pads
    g. Handler is properly trained and well versed on the hazards presented

2. Hydrochloric acid – 9%
    a. Up to 40 gallons
    b. Stored in a locked pump room
    c. Stored in a double-walled polyethylene tank
    d. Properly labelled and sealed
    e. MSDS onsite
    f. Mixed on cement pads
    g. Handler is properly trained and well versed on the hazards presented

Environmental Compliance

The Alameda Swimming Pool Association intends to comply with all applicable environmental laws. A Hazardous Materials Business Plan and Sewer Use Questionnaire will be submitted to the City of Alameda within 30 days of the lease renewal.

ConnectingChemistry

BRENNTAG

SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006

SODIUM HYPOCHLORITE 15%/ 1220 KG INCL

Version 11.0 Print Date 21.12.2020

Revision date / valid from 25.10.2019

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name	:	SODIUM HYPOCHLORITE 15%/ 1220 KG INCL
Substance name	:	sodium hypochlorite, solution
Index-No.	:	017-011-00-1
CAS-No.	:	7681-52-9
EC-No.	:	231-668-3
EU REACH-Reg. No.	:	01-2119488154-34-xxxx

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture	:	This material is for non-biocidal uses only., Identified use: See table in front of appendix for a complete overview of identified uses.
Uses advised against	:	Not to be used as a biocidal product., Reserved for industrial and professional use.

1.3. Details of the supplier of the safety data sheet

Company	:	Brenntag Nordic AB Hyllie Stationstorg 31 SE 215 32 Malmö
Telephone	:	+46 (0)40-28 73 00
Telefax	:	+46 (0)40-93 7015
E-mail address	:	SDS.SE@brenntag-nordic.com
Responsible/issuing person	:	Environment & Quality

1.4. Emergency telephone number

Emergency telephone number	:	In case of personal injury call: Denmark: 82 12 12 12 Giftlinien, Bispebjerg Hospital Finland: Poison Information Centre: (09) 471 977 (direct) or (09) 47 11 11 (exchange), open 24h/day Norway: 22 59 13 00 Giftinformasjonen (døgnåpent) Sweden: +46-8-331231 Giftinformationscentralen (24 hour service) Outside these countries: Please call your local emergency services

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

REGULATION (EC) No 1272/2008			
Hazard class	**Hazard category**	**Target Organs**	**Hazard statements**
Corrosive to metals	Category 1	---	H290
Skin corrosion	Category 1B	---	H314
Serious eye damage	Category 1	---	H318
Short-term (acute) aquatic hazard	Category 1	---	H400
Long-term (chronic) aquatic hazard	Category 2	---	H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

Most important adverse effects

Human Health	:	The product causes burns of eyes, skin and mucous membranes.
Physical and chemical hazards	:	The product is not flammable., Contact with acids liberates toxic gas., May be corrosive to metals.
Potential environmental effects	:	Harmful effects to aquatic organisms also due to pH-shift. Very toxic to aquatic organisms.

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard symbols :

Signal word	:	Danger	
Hazard statements	:	H290 H314 H410	May be corrosive to metals. Causes severe skin burns and eye damage. Very toxic to aquatic life with long lasting effects.
Precautionary statements			
Prevention	:	P273 P280	Avoid release to the environment. Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response : P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
P390 Absorb spillage to prevent material damage.

Additional Labelling:

EUH031 Contact with acids liberates toxic gas.

Hazardous components which must be listed on the label:

- sodium hypochlorite, solution
- sodium hydroxid

2.3. Other hazards

For Results of PBT and vPvB assessment see section 12.5.
Warning! Do not use together with other products. May release dangerous gases (chlorine).

SECTION 3: Composition/information on ingredients

3.1. Substances

Hazardous components	Amount [%]	Classification (REGULATION (EC) No 1272/2008)	
		Hazard class / Hazard category	Hazard statements
sodium hypochlorite, solution			
Index-No. : 017-011-00-1 CAS-No. : 7681-52-9 EC-No. : 231-668-3 EU REACH-Reg. No. : 01-2119488154-34-xxxx	>= 10 - < 20	Met. Corr.1 Skin Corr.1B Eye Dam.1 Aquatic Acute1 Aquatic Chronic1	H290 H314 H318 H400 H410
sodium hydroxide			
Index-No. : 011-002-00-6 CAS-No. : 1310-73-2 EC-No. : 215-185-5 EU REACH-Reg. No. : 01-2119457892-27-xxxx	<= 0,8	Met. Corr.1 Skin Corr.1A Eye Dam.1	H290 H314 H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice	: Take off all contaminated clothing immediately.
If inhaled	: In case of accident by inhalation: remove casualty to fresh air and keep at rest. If breathing is irregular or stopped, administer artificial respiration. Call a physician immediately.
In case of skin contact	: Wash off immediately with soap and plenty of water. Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.
In case of eye contact	: Rinse immediately with plenty of water (tempered water), also under the eyelids, for at least 15 minutes. Consult an eye specialist immediately. Go to an ophthalmic hospital if possible.
If swallowed	: Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. If swallowed, do not induce vomiting - seek medical advice. If a person vomits when lying on his back, place him in the recovery position.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms	: See Section 11 for more detailed information on health effects and symptoms.
Effects	: See Section 11 for more detailed information on health effects and symptoms.

4.3. Indication of any immediate medical attention and special treatment needed

Treatment	: No information available.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. The product itself does not burn.
Unsuitable extinguishing media	: Exempt

5.2. Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	Fire may cause evolution of: Chlorine, Hydrogen chloride gas, chlorine oxides

5.3. Advice for firefighters

Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus.Wear appropriate body protection (full protective suit)
Further advice	:	Cool closed containers exposed to fire with water spray.Heating will cause a pressure rise - with risk of bursting.Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Use personal protective equipment. Wear respiratory protection. Keep people away from and upwind of spill/leak. Provide adequate ventilation. Danger of slipping if spilled Avoid contact with skin and eyes. Do not breathe vapour.

6.2. Environmental precautions

Environmental precautions	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration. If the product contaminates rivers and lakes or drains inform respective authorities. If material reaches soil inform authorities responsible for such cases.

6.3. Methods and materials for containment and cleaning up

Methods and materials for containment and cleaning up	:	Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders). Keep in suitable, closed containers for disposal. Do not keep the container sealed.
Further information	:	Treat recovered material as described in the section "Disposal considerations".

6.4. Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on personal protective equipment.
See Section 13 for waste treatment information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling	:	Handle in accordance with good industrial hygiene and safety practice. Avoid contact with the skin and the eyes. Do not keep the container sealed. Ensure adequate ventilation. Emergency eye wash fountains and emergency showers should be available in the immediate vicinity.

Hygiene measures	:	Keep away from food, drink and animal feedingstuffs. Smoking, eating and drinking should be prohibited in the application area. Wash hands before breaks and at the end of workday. Take off all contaminated clothing immediately.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Keep in a cool, well-ventilated place. Keep in an area equipped with alkali resistant flooring. Keep only in the original container. Store in a receptacle equipped with a vent. Protect against light.
Advice on protection against fire and explosion	:	The product is not flammable. Normal measures for preventive fire protection.
Further information on storage conditions	:	Keep in a well-ventilated place. Protect against light. Store in cool place. Do not keep the container sealed.
Advice on common storage	:	Keep away from food, drink and animal feedingstuffs. Do not store together with acids and ammonium salts.

7.3. Specific end use(s)

Specific use(s)	:	No information available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Component:	sodium hypochlorite, solution	CAS-No. 7681-52-9
Derived No Effect Level (DNEL)/Derived Minimal Effect Level (DMEL)		

DNEL Workers, Acute - systemic effects, Acute - local effects, Inhalation	:	3,1 mg/m3
DNEL Workers, Long-term - systemic effects, Long-term - local effects, Inhalation	:	1,55 mg/m3
DNEL Workers, Long-term - local effects, Skin contact	:	0,5 %
DNEL Consumers, Long-term - systemic effects, Long-term - local effects, Inhalation	:	1,55 mg/m3
DNEL Consumers, short-term, Inhalation	:	3,1 mg/m3
DNEL		

Consumers, Long-term - systemic effects, Ingestion	:	0,26 mg/kg bw/day

Predicted No Effect Concentration (PNEC)

Fresh water	:	0,21 µg/l
Marine water	:	0,042 µg/l
Sewage treatment plant (STP)	:	0,03 mg/l
Intermittent releases	:	0,26 µg/l
Secondary poisoning	:	11 mg/kg food

Component: sodium hydroxide CAS-No. 1310-73-2

Other Occupational Exposure Limit Values

Sweden. Occupational Exposure Limit Values, as amended, Time Weighted Average (TWA):, Inhalable dust.
1 mg/m3

Sweden. Occupational Exposure Limit Values, as amended, Short Term Exposure Limit, Inhalable dust.
2 mg/m3

8.2. Exposure controls

Appropriate engineering controls

Refer to protective measures listed in sections 7 and 8.

Personal protective equipment

Respiratory protection

Advice : Use respirator with appropriate filter if vapours or aerosol are released.
Recommended Filter type:
Combination filter:B-P2
Combination filter:B-P3
For low vapor concentrations: EN 136. For higher concentrations: EN 137

Hand protection

Advice : Protective gloves complying with EN 374.
The glove material has to be impermeable and resistant to the product / the substance / the preparation.
Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).

Protective gloves should be replaced at first signs of wear.

Material	:	butyl-rubber
Break through time	:	8 h
Glove thickness	:	0,5 mm

Material	:	Polyvinylchloride
Break through time	:	8 h
Glove thickness	:	0,5 mm

Material	:	polychloroprene
Break through time	:	8 h
Glove thickness	:	0,5 mm

Eye protection

Advice	:	Safety glasses with side-shields conforming to EN166 Tightly fitting safety goggles

Skin and body protection

Advice	:	alkali resistant protective clothing (EN 340)

Environmental exposure controls

General advice	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration. If the product contaminates rivers and lakes or drains inform respective authorities. If material reaches soil inform authorities responsible for such cases.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Form	:	liquid
Colour	:	yellowish green
Odour	:	slight chlorine
Odour Threshold	:	no data available
pH	:	13,5 (150 g/l ; 20 °C)(as aqueous solution)
Freezing point/range	:	< -16 °C
Boiling point/boiling range	:	Decomposes before boiling

Flash point	:	Not applicable
Evaporation rate	:	no data available
Flammability (solid, gas)	:	Not applicable
Upper explosion limit	:	Not applicable
Lower explosion limit	:	Not applicable
Vapour pressure	:	17 hPa (20 °C)
Relative vapour density	:	no data available
Density	:	1,21 - 1,23 g/cm3 (20 °C)
Water solubility	:	completely miscible
Partition coefficient: n-octanol/water	:	no data available
Auto-ignition temperature	:	Not applicable
Thermal decomposition	:	To avoid thermal decomposition, do not overheat.
Viscosity, dynamic	:	2,65 mPa.s (20 °C)
Explosivity	:	Product is not explosive.
Oxidizing properties	:	Oxidizing agents

9.2. Other information

Corrosion to metals	:	Corrosive to metals

SECTION 10: Stability and reactivity

10.1. Reactivity

Advice : Contact with acids liberates toxic gas.

10.2. Chemical stability

Advice : Decomposes on heating.
Decomposes on exposure to light.

10.3. Possibility of hazardous reactions

Hazardous reactions : May develop chlorine if mixed with acidic solutions.

10.4. Conditions to avoid

Thermal decomposition : To avoid thermal decomposition, do not overheat.

10.5. Incompatible materials

Materials to avoid : Acids, ammonium compounds, Acetic anhydride, Organic materials, Hydrogen peroxide, metal salts, Copper, Nickel, Iron

10.6. Hazardous decomposition products

Hazardous decomposition products : Hydrogen chloride gas, Chlorine, chlorine oxides

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Data for the product		
Acute toxicity		
Oral		
		Cause serious burns with severe pains, vomiting, pains in the stomach, possibly chock and damaged kidneys. The burn may occur even if only small amounts have been swallowed.
Inhalation		
		Inhalation may cause pain and cough. Inhalation of aerosols/vapours may during a couple of hours cause liquid in the lungs (edema).
Irritation		
Skin		
Result	:	May cause burns with pain, redness and wounds.
Eyes		
Result	:	Splashes in the eyes may cause painful burns, which may result in permanent damage to the eyes.
Specific Target Organ Toxicity		
Single exposure		
Remarks	:	The substance or mixture is not classified as specific target organ toxicant, single exposure.
Component:	**sodium hypochlorite, solution**	**CAS-No. 7681-52-9**
Acute toxicity		
Oral		
LD50	:	> 1100 mg/kg (Rat) (OECD Test Guideline 401)
Inhalation		

LC50	:	> 10,5 mg/l (Rat; 1 h) (OECD Test Guideline 403)

Dermal

LD50	:	> 20000 mg/kg (Rabbit) (OECD Test Guideline 402)

Sensitisation

Result	:	not sensitizing (Buehler Test; Guinea pig) (OECD Test Guideline 406)

CMR effects

CMR Properties

Carcinogenicity	:	Animal testing did not show any carcinogenic effects.
Mutagenicity	:	In vitro tests did not show mutagenic effects In vivo tests did not show mutagenic effects
Teratogenicity	:	Did not show teratogenic effects in animal experiments.
Reproductive toxicity	:	Animal testing did not show any effects on fertility.

Teratogenicity

NOAEL Teratog.	:	>= 5,7 mg/kg bw/day (Rat)(Oral)(OECD Test Guideline 414)

Reproductive toxicity

NOAEL Parent	:	>= 5 mg/kg bw/day
NOAEL F1	:	>= 5 mg/kg bw/day (Rat)(Oral)(OECD Test Guideline 415)

Specific Target Organ Toxicity

Repeated exposure

Remarks	:	The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Other toxic properties

Repeated dose toxicity

NOAEL	:	50 mg/kg bw/day (Rat, male)(Oral; 90 Days) (OECD Test Guideline 408)

NOAEL	:	57.2 mg/kg bw/day (Rat, female)(Oral; 90 Days) (OECD Test Guideline 408)
LOAEL	:	<= 0,003 mg/l(Rat, male and female)(Oral; 30 Days) (OECD Test Guideline 412)

Aspiration hazard

No aspiration toxicity classification,

SECTION 12: Ecological information

12.1. Toxicity

Component:	**sodium hypochlorite, solution**	**CAS-No. 7681-52-9**

Acute toxicity

Fish

LC50	:	0,06 mg/l (Oncorhynchus mykiss (rainbow trout); 96 h) Fresh water
LC50		0,032 mg/l (Oncorhynchus kisutch (coho salmon); 96 h) Marine water

Toxicity to daphnia and other aquatic invertebrates

EC50	:	0,141 mg/l (Daphnia magna (Water flea); 48 h) (OECD Test Guideline 202)
EC50		0,035 mg/l (Ceriodaphnia dubia (water flea); 48 h) (OECD Test Guideline 202)

algae

NOEC	:	0,0021 mg/l (algae; 7 Days) (flow-through test)Fresh water

Chronic toxicity

Fish

NOEC	:	0,04 mg/l (Menidia peninsulae (tidewater silverside); 28 d) Marine water

Aquatic invertebrates

NOEC	0,007 mg/l (Eastern oyster (Crassostrea virginica); 15 d) Marine water

M-Factor		
M-Factor (Acute Aquat. Tox.)	:	10
M-Factor (Chron. Aquat. Tox.)	:	1

12.2. Persistence and degradability

Component:	sodium hypochlorite, solution	CAS-No. 7681-52-9

Persistence and degradability

Persistence

Result	:	The product can be degraded by abiotic (e.g. chemical or photolytic) processes. decomposition by hydrolysis. Half-life in fresh-water < 1 day

Biodegradability

Result	:	The methods for determining the biological degradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Component:	sodium hypochlorite, solution	CAS-No. 7681-52-9

Bioaccumulation

Result	:	log Kow -3,42 (20 °C)
	:	Does not bioaccumulate.

12.4. Mobility in soil

Component:	sodium hypochlorite, solution	CAS-No. 7681-52-9

Mobility

Water	:	The product is mobile in water enviroment.
Soil	:	Highly mobile in soils
Air	:	not volatile (Henry's Constant)

12.5. Results of PBT and vPvB assessment

Component:	sodium hypochlorite, solution	CAS-No. 7681-52-9
	Results of PBT and vPvB assessment	

Result : The PBT or vPvB criteria of Annex XIII to the REACH Regulation does not apply to inorganic substances.

12.6. Other adverse effects

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product : Eliminate waste in conditions authorized by the regulations. Store waste in containers provided for this purpose. Do not dump in drains, water sheets or the ground.

Contaminated packaging : Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning. Packagings that cannot be cleaned are to be disposed of in the same manner as the product.

European Waste Catalogue Number : No waste code according to the European Waste Catalogue can be assigned for this product, as the intended use dictates the assignment. The waste code is established in consultation with the regional waste disposer.

SECTION 14: Transport information

14.1. UN number

1791

14.2. UN proper shipping name

ADR : HYPOCHLORITE SOLUTION
RID : HYPOCHLORITE SOLUTION
IMDG : HYPOCHLORITE SOLUTION
(Sodium hypochlorite)

14.3. Transport hazard class(es)

ADR-Class (Labels; Classification Code; Hazard identification No; Tunnel restriction code)	: 8 8; C9; 80; (E)
RID-Class (Labels; Classification Code; Hazard identification No)	: 8 8; C9; 80
IMDG-Class (Labels; EmS)	: 8 8; F-A, S-B

14.4. Packaging group

ADR	: II
RID	: II
IMDG	: II

14.5. Environmental hazards

Environmentally hazardous according to ADR	: yes
Environmentally hazardous according to RID	: yes
Marine Pollutant according to IMDG-Code	: yes

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

IMDG : Not applicable.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Data for the product

Other regulations : Exposure limits in accordance to local regulations
Only persons, who are thoroughly instructed in the dangerous properties and the necessary safety precautions of the substance, are allowed to work with it.

As a principal rule, persons under 18 years are not allowed to work with this substance.

15.2. Chemical safety assessment

no data available

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

Abbreviations and Acronyms

BCF	bioconcentration factor
BOD	biochemical oxygen demand
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging
CMR	carcinogenic, mutagenic or toxic to reproduction
COD	chemical oxygen demand
DNEL	derived no-effect level
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
LC50	median lethal concentration
LOAEC	lowest observed adverse effect concentration
LOAEL	lowest observed adverse effect level
LOEL	lowest observed effect level
NLP	no-longer polymer
NOAEC	no observed adverse effect concentration
NOAEL	no observed adverse effect level
NOEC	no observed effect concentration
NOEL	no observed effect level
OECD	Organisation for Economic Cooperation and Development
OEL	occupational exposure limit
PBT	persistent, bioaccumulative and toxic
REACH Auth. No.:	REACH Authorisation Number
REACH AuthAppC. No.	REACH Authorisation Application Consultation Number
PNEC	predicted no-effect concentration
STOT	specific target organ toxicity
SVHC	substance of very high concern
UVCB	substance of unknown or variable composition, complex reaction products or biological materials
vPvB	very persistent and very bioaccumulative

Further information

Key literature references and sources for data	:	Supplier information and data from the "Database of registered substances" of the European Chemicals Agency (ECHA) were used to create this safety data sheet.
Methods used for product classification	:	The classification for human health, physical and chemical hazards and environmental hazards were derived from a combination of calculation methods and if available test data.
Hints for trainings	:	The workers have to be trained regularly on the safe handling of the products based on the information provided in the Safety Data Sheet and the local conditions of the workplace. National regulations for the training of workers in the handling of

hazardous materials must be adhered to.

Other information	:	Restricted to professional users. Attention - Avoid exposure - obtain special instructions before use. The information provided in this Safety Data Sheet is correct to our knowledge at the date of its revision. The information given only describes the products with regard to safety arrangements and is not to be considered as a warranty or quality specification and does not constitute a legal relationship. The information contained in this Safety Data Sheet relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

|| Indicates updated section.

SODIUM HYPOCHLORITE 15%/ 1220 KG INCL

No.	Short title	Main User Group (SU)	Sector of Use (SU)	Product Category (PC)	Process Category (PROC)	Environmental Release Category (ERC)	Article Category (AC)	Specified
1	Manufacture of substance	3	8	NA	1, 2, 3, 4, 8a, 8b, 9	1	NA	ES447
2	Use as an intermediate	3	8, 9	19	1, 2, 3, 4, 8a, 8b, 9	6a	NA	ES9182
3	Formulation & (re)packing of substances and mixtures	3	10	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15	2	NA	ES9179
4	Use in cleaning agents	3	4	35	5, 7, 8a, 9, 10, 13	6b	NA	ES9191
5	Use in cleaning agents	22	NA	35	5, 9, 10, 11, 13, 15	8a, 8b, 8d, 8e	NA	ES538
6	Use in sewage water treatment	3	23	20, 37	1, 2, 3, 4, 5, 8a, 8b, 9	6b	NA	ES9187
7	Use in paper industry	3	6b	26	1, 2, 3, 4, 5, 8a, 8b, 9	6b	NA	ES9189
8	Use in textile industry	3	5	34	1, 2, 3, 4, 5, 8a, 8b, 9, 13	6b	NA	ES9185
9	Consumer use	21	NA	34, 35, 37	NA	8a, 8b, 8d, 8e	NA	ES653

1. Short title of Exposure Scenario 1: Manufacture of substance	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU8: Manufacture of bulk, large scale chemicals (including petroleum products)
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Environmental Release Categories	ERC1: Manufacture of substances

2.1 Contributing scenario controlling environmental exposure for: ERC1

Substance is a unique structure, Non-hydrophobic.
, Low potential to bioaccumulate.

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
Amount used	Amounts used in the EU (tonnes/year)	999,999 ton(s)/year
Frequency and duration of use	Continuous exposure	360 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Substance release to air can be excluded
	Water	Risk from environmental exposure is driven by freshwater., Do not release wastewater directly into environment., Onsite wastewater treatment required, No discharge of substance into waste water
	Soil	Substance release to soil can be excluded
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.

	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	25 hPa
	Process Temperature	90 °C
Frequency and duration of use	Exposure duration per day	8 h
	Frequency of use	5 days/week
Human factors not influenced by risk management	Body weight	70 kg
	Respiration volume under conditions of use	10 m3/day
	Light activity	
Other operational conditions affecting workers exposure	Indoor or outdoor use	
	Assumes activities are at ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Drain down system prior to equipment opening or maintenance.	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure that no inhalable aerosols are generated Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. Ensure containment of the emission source	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection In the case of hazardous fumes, wear self contained breathing apparatus.	
Risk management measures are based on qualitative risk characterisation.		

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Workers

PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, Relevant for all PROCs: EU RAR

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
Relevant for all PROCs	---	Worker - inhalative, long-term - local and systemic.	0,705mg/m³	0,4548
PROC1, PROC2, PROC3, PROC4	General exposures	worker - inhalation, short-term - local and systemic	0,540mg/m³	0,1742
PROC1, PROC2, PROC3, PROC4	Laboratory activities	worker - inhalation, short-term - local and systemic	0,252mg/m³	0,081
PROC1, PROC2, PROC3, PROC4	Equipment maintenance	worker - inhalation, short-term - local and systemic	0,480mg/m³	0,155
PROC8a, PROC8b, PROC9	---	worker - inhalation, short-term - local and systemic	0,498mg/m³	0,161

Qualitative assessment dermal. Contact is only accidental. The exposure estimate represents the 90th percentile of the exposure distribution.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may

be necessary to define appropriate site-specific risk management measures.
Exposure values based on the EU Risk Assessment Report on chlorine (2007)

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.
Ensure that gas alarms are installed
Change gloves, if duration of activity exceeds breakthrough time

1. Short title of Exposure Scenario 2: Use as an intermediate		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Sectors of end-use	SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals	
Chemical product category	PC19: Intermediate	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	
Environmental Release Categories	ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)	

2.1 Contributing scenario controlling environmental exposure for: ERC6a		
Substance is a unique structure, Non-hydrophobic. , Low potential to bioaccumulate.		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
Amount used	Amounts used in the EU (tonnes/year)	999,999 ton(s)/year
Frequency and duration of use	Continuous exposure	360 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Substance release to air can be excluded
	Water	Risk from environmental exposure is driven by freshwater., Do not release wastewater directly into environment., Onsite wastewater treatment required, No discharge of substance into waste water
	Soil	Substance release to soil can be excluded
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9		
Product characteristics	Concentration of the	Covers percentage substance in the product up to

	Substance in Mixture/Article	25 %.
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	25 hPa
	Process Temperature	90 °C
Frequency and duration of use	Exposure duration per day	8 h
	Frequency of use	5 days/week
Human factors not influenced by risk management	Body weight	70 kg
	Respiration volume under conditions of use	10 m3/day
	Light activity	
Other operational conditions affecting workers exposure	Indoor use	
	Assumes activities are at ambient temperature., Outdoor location is covered by the worst case inside location	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Drain down system prior to equipment opening or maintenance.	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure that no inhalable aerosols are generated Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. Ensure containment of the emission source	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection In the case of hazardous fumes, wear self contained breathing apparatus.	
Risk management measures are based on qualitative risk characterisation.		

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Workers

PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9: Advanced REACH Tool (ART model)

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - local	0,02mg/m³	0,01
PROC2, PROC3	---	Worker - inhalative, long-term - local	1,10mg/m³	0,71
PROC4	---	Worker - inhalative, long-term - local	1,20mg/m³	0,77
PROC8a, PROC8b	---	Worker - inhalative, long-term - local	1,25mg/m³	0,81
PROC9	---	Worker - inhalative, long-term - local	0,91mg/m³	0,59

The short-term exposure is covered by the assessment of long-term exposure. Qualitative assessment dermal.
Qualitative approach used to conclude safe use.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.
Ensure that gas alarms are installed
Change gloves, if duration of activity exceeds breakthrough time

1. Short title of Exposure Scenario 3: Formulation & (re)packing of substances and mixtures	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU 10: Formulation
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation PROC15: Use as laboratory reagent
Environmental Release Categories	ERC2: Formulation of preparations

2.1 Contributing scenario controlling environmental exposure for: ERC2

Substance is a unique structure, Non-hydrophobic.
, Low potential to bioaccumulate.

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
Amount used	Amounts used in the EU (tonnes/year)	999,999 ton(s)/year
Frequency and duration of use	Continuous exposure	360 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Substance release to air can be excluded
	Water	Risk from environmental exposure is driven by freshwater., Do not release wastewater directly into environment., Onsite wastewater treatment required, No discharge of substance into waste water
	Soil	Substance release to soil can be excluded
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4,

PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	25 hPa
	Process Temperature	90 °C
Frequency and duration of use	Exposure duration per day	8 h
	Frequency of use	5 days/week
Human factors not influenced by risk management	Body weight	70 kg
	Respiration volume under conditions of use	10 m3/day
	Light activity	
Other operational conditions affecting workers exposure	Indoor or outdoor use	
	Assumes activities are at ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Drain down system prior to equipment opening or maintenance. Ensure samples are obtained under containment or extract ventilation.	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure that no inhalable aerosols are generated Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. Ensure containment of the emission source	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection In the case of hazardous fumes, wear self contained breathing apparatus.	
Risk management measures are based on qualitative risk characterisation.		

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Workers

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15: EU RAR

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15	---	Worker - inhalative, long-term - local and systemic.	0,705mg/m³	0,4548
PROC1, PROC2, PROC3, PROC4, PROC5	General exposures	worker - inhalation, short-term - local and systemic	0,540mg/m³	0,1742
PROC1, PROC2, PROC3, PROC4, PROC5	Laboratory activities	worker - inhalation, short-term - local and systemic	0,252mg/m³	0,081

PROC1, PROC2, PROC3, PROC4, PROC5	Equipment maintenance	worker - inhalation, short-term - local and systemic	0,480mg/m³	0,155
PROC8a, PROC8b, PROC9	---	worker - inhalation, short-term - local and systemic	0,498mg/m³	0,161
PROC14	---	Worker - inhalative, long-term	0,23mg/m³	0,15

Qualitative assessment dermal. Contact is only accidental. The exposure estimate represents the 90th percentile of the exposure distribution.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Exposure values based on the EU Risk Assessment Report on chlorine (2007)

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.
Ensure that gas alarms are installed
Change gloves, if duration of activity exceeds breakthrough time

1. Short title of Exposure Scenario 4: Use in cleaning agents	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU4: Manufacture of food products
Chemical product category	PC35: Washing and cleaning products (including solvent based products)
Process categories	PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring
Environmental Release Categories	ERC6b: Industrial use of reactive processing aids
Activity	Note: this Exposure Scenario is only relevant for an appropriated use according to the quality grade of the substance delivered

2.1 Contributing scenario controlling environmental exposure for: ERC6b

Substance is a unique structure, Non-hydrophobic.
, Low potential to bioaccumulate.

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
Amount used	Amounts used in the EU (tonnes/year)	999,999 ton(s)/year
Frequency and duration of use	Continuous exposure	360 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Substance release to air can be excluded
	Water	Risk from environmental exposure is driven by freshwater., Do not release wastewater directly into environment., Onsite wastewater treatment required, No discharge of substance into waste water
	Soil	Substance release to soil can be excluded
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC5, PROC7, PROC8a, PROC9, PROC10, PROC13

Product characteristics	Concentration of the Substance in	Covers percentage substance in the product up to 25 %.

	Mixture/Article	
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	25 hPa
	Process Temperature	90 °C
Frequency and duration of use	Exposure duration per day	8 h
	Frequency of use	5 days/week
Human factors not influenced by risk management	Body weight	70 kg
	Respiration volume under conditions of use	10 m3/day
	Light activity	
Other operational conditions affecting workers exposure	Indoor use	
	Assumes activities are at ambient temperature., Outdoor location is covered by the worst case inside location	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Drain down system prior to equipment opening or maintenance.	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure that no inhalable aerosols are generated Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. Ensure containment of the emission source	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection In the case of hazardous fumes, wear self contained breathing apparatus.	
Risk management measures are based on qualitative risk characterisation.		

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Workers

PROC5, PROC7, PROC8a, PROC9, PROC10, PROC13: Advanced REACH Tool (ART model)

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC5, PROC8a	---	Worker - inhalative, long-term - local	1,25mg/m³	0,81
PROC7	---	Worker - inhalative, long-term - local	1,20mg/m³	0,77
PROC9	---	Worker - inhalative, long-term - local	0,91mg/m³	0,59
PROC10	---	Worker - inhalative, long-term - local	1,00mg/m³	0,65
PROC13	---	Worker - inhalative, long-term - local	0,70mg/m³	0,45

The short-term exposure is covered by the assessment of long-term exposure. Qualitative assessment dermal.
Qualitative approach used to conclude safe use.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.
Ensure that gas alarms are installed
Change gloves, if duration of activity exceeds breakthrough time

1. Short title of Exposure Scenario 5: Use in cleaning agents	
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Chemical product category	PC35: Washing and cleaning products (including solvent based products)
Process categories	PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring PROC15: Use as laboratory reagent
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8e: Wide dispersive outdoor use of reactive substances in open systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8d, ERC8e

Substance is a unique structure, Non-hydrophobic.
, Low potential to bioaccumulate.

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 10%
Amount used	Amounts used in the EU (tonnes/year)	999999 ton(s)/year
Frequency and duration of use	Continuous exposure	360 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Substance release to air can be excluded
	Water	Risk from environmental exposure is driven by freshwater., Do not release wastewater directly into environment., Do not let product enter drains., Onsite wastewater treatment required
	Soil	Substance release to soil can be excluded
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC5, PROC9, PROC10, PROC13, PROC15

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 10%
	Physical Form (at time of	Liquid, moderate fugacity

	use)	
	Vapour pressure	25 hPa
Frequency and duration of use	Exposure duration per day	8 h
	Frequency of use	5 days/week
Other operational conditions affecting workers exposure	Indoor or outdoor use	
	Assumes activities are at ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure that no inhalable aerosols are generated Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. The work place and work methods shall be organized in such a way that direct contact with the product is prevented or minimized.	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection Personal measures have to be applied in case of potential exposure only.	
Risk management measures are based on qualitative risk characterisation.		
2.3 Contributing scenario controlling worker exposure for: PROC11		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 0% - 0.05%
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	25 hPa
	Process Temperature	90 °C
Amount used		0,005 kg
Frequency and duration of use	Exposure duration	120 min
	Frequency of use	4 Times per day
Other operational conditions affecting workers exposure	Indoor or outdoor use	
	Assumes activities are at ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.	
Organisational measures to prevent /limit releases, dispersion and exposure	Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. The work place and work methods shall be organized in such a way that direct contact with the product is prevented or minimized.	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection	
Risk management measures are based on qualitative risk characterisation.		

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Workers

PROC11: EASE v2.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC11	---	Worker - inhalative, long-term - systemic	0,0017mg/m³	0,0011

Qualitative assessment dermal. Contact is only accidental. Exposure is considered negligible.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.
Ensure that gas alarms are installed
Change gloves, if duration of activity exceeds breakthrough time

1. Short title of Exposure Scenario 6: Use in sewage water treatment		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Sectors of end-use	SU23: Electricity, steam, gas water supply and sewage treatment	
Chemical product category	PC20: Products such as pH-regulators, flocculants, precipitants, neutralization agents PC37: Water treatment chemicals	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	
Environmental Release Categories	ERC6b: Industrial use of reactive processing aids	
2.1 Contributing scenario controlling environmental exposure for: ERC6b		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
Amount used	Amounts used in the EU (tonnes/year)	999,999 ton(s)/year
Frequency and duration of use	Continuous exposure	360 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Substance release to air can be excluded
	Water	Risk from environmental exposure is driven by freshwater., Do not release wastewater directly into environment., Onsite wastewater treatment required, No discharge of substance into waste water
	Soil	Substance release to soil can be excluded
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9		
Product characteristics	Concentration of the Substance in	Covers percentage substance in the product up to 25 %.

	Mixture/Article	
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	25 hPa
	Process Temperature	90 °C
Frequency and duration of use	Exposure duration per day	8 h
	Frequency of use	5 days/week
Human factors not influenced by risk management	Body weight	70 kg
	Respiration volume under conditions of use	10 m3/day
	Light activity	
Other operational conditions affecting workers exposure	Indoor use	
	Assumes activities are at ambient temperature., Outdoor location is covered by the worst case inside location	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Drain down system prior to equipment opening or maintenance.	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure that no inhalable aerosols are generated Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. Ensure containment of the emission source	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection In the case of hazardous fumes, wear self contained breathing apparatus.	
Risk management measures are based on qualitative risk characterisation.		

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Workers

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9: Advanced REACH Tool (ART model)

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - local	0,02mg/m³	0,01
PROC2, PROC3	---	Worker - inhalative, long-term - local	1,10mg/m³	0,71
PROC4	---	Worker - inhalative, long-term - local	1,20mg/m³	0,77
PROC5, PROC8a, PROC8b	---	Worker - inhalative, long-term - local	1,25mg/m³	0,81
PROC9	---	Worker - inhalative, long-term - local	0,91mg/m³	0,59

The short-term exposure is covered by the assessment of long-term exposure. Qualitative assessment dermal.
Qualitative approach used to conclude safe use.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.
Ensure that gas alarms are installed
Change gloves, if duration of activity exceeds breakthrough time
These measures involve good personal and housekeeping practices (i.e. regular cleaning), no eating and smoking at the workplace, wearing of standard working clothes and shoes.

1. Short title of Exposure Scenario 7: Use in paper industry	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU6b: Manufacture of pulp, paper and paper products
Chemical product category	PC26: Paper and board dye, finishing and impregnation products: including bleaches and other processing aids
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Environmental Release Categories	ERC6b: Industrial use of reactive processing aids

2.1 Contributing scenario controlling environmental exposure for: ERC6b

Substance is a unique structure, Non-hydrophobic.
, Low potential to bioaccumulate.

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
Amount used	Amounts used in the EU (tonnes/year)	999,999 ton(s)/year
Frequency and duration of use	Continuous exposure	360 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Substance release to air can be excluded
	Water	Risk from environmental exposure is driven by freshwater., Do not release wastewater directly into environment., Onsite wastewater treatment required, No discharge of substance into waste water
	Soil	Substance release to soil can be excluded
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	25 hPa
	Process Temperature	90 °C
Frequency and duration of use	Exposure duration per day	8 h
	Frequency of use	5 days/week
Human factors not influenced by risk management	Body weight	70 kg
	Respiration volume under conditions of use	10 m3/day
	Light activity	
Other operational conditions affecting workers exposure	Indoor use	
	Assumes activities are at ambient temperature., Outdoor location is covered by the worst case inside location	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Drain down system prior to equipment opening or maintenance.	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure that no inhalable aerosols are generated Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. Ensure containment of the emission source	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection In the case of hazardous fumes, wear self contained breathing apparatus.	
Risk management measures are based on qualitative risk characterisation.		

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Workers

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9: Advanced REACH Tool (ART model)

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - local	0,02mg/m³	0,01
PROC2, PROC3	---	Worker - inhalative, long-term - local	1,10mg/m³	0,71
PROC4	---	Worker - inhalative, long-term - local	1,20mg/m³	0,77
PROC5, PROC8a, PROC8b	---	Worker - inhalative, long-term - local	1,25mg/m³	0,81
PROC9	---	Worker - inhalative, long-term - local	0,91mg/m³	0,59

The short-term exposure is covered by the assessment of long-term exposure. Qualitative assessment dermal.
Qualitative approach used to conclude safe use.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.
Ensure that gas alarms are installed
Change gloves, if duration of activity exceeds breakthrough time
These measures involve good personal and housekeeping practices (i.e. regular cleaning), no eating and smoking at the workplace, wearing of standard working clothes and shoes.

1. Short title of Exposure Scenario 8: Use in textile industry	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU5: Manufacture of textiles, leather, fur
Chemical product category	PC34: Textile dyes, finishing and impregnating products; including bleaches and other processing aids
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC13: Treatment of articles by dipping and pouring
Environmental Release Categories	ERC6b: Industrial use of reactive processing aids

2.1 Contributing scenario controlling environmental exposure for: ERC6b

Substance is a unique structure, Non-hydrophobic.
, Low potential to bioaccumulate.

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
Amount used	Amounts used in the EU (tonnes/year)	999,999 ton(s)/year
Frequency and duration of use	Continuous exposure	360 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Substance release to air can be excluded
	Water	Risk from environmental exposure is driven by freshwater., Do not release wastewater directly into environment., Onsite wastewater treatment required, No discharge of substance into waste water
	Soil	Substance release to soil can be excluded
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4,

PROC5, PROC8a, PROC8b, PROC9, PROC13		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	25 hPa
	Process Temperature	90 °C
Frequency and duration of use	Exposure duration per day	8 h
	Frequency of use	5 days/week
Human factors not influenced by risk management	Body weight	70 kg
	Respiration volume under conditions of use	10 m3/day
	Light activity	
Other operational conditions affecting workers exposure	Indoor use	
	Assumes activities are at ambient temperature., Outdoor location is covered by the worst case inside location	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Drain down system prior to equipment opening or maintenance.	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure that no inhalable aerosols are generated Regular inspection and maintenance of equipment and machines. Ensure that the task is not carried out overhead. Ensure containment of the emission source	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of odour, gas alarm or insufficient ventilation wear suitable respiratory protection In the case of hazardous fumes, wear self contained breathing apparatus.	
Risk management measures are based on qualitative risk characterisation.		

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Workers

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC13: Advanced REACH Tool (ART model)

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - local	0,02mg/m³	0,01
PROC2, PROC3	---	Worker - inhalative, long-term - local	1,10mg/m³	0,71
PROC4	---	Worker - inhalative, long-term - local	1,20mg/m³	0,77
PROC5, PROC8a, PROC8b	---	Worker - inhalative, long-term - local	1,25mg/m³	0,81
PROC9	---	Worker - inhalative, long-term - local	0,91mg/m³	0,59

PROC13	---	Worker - inhalative, long-term - local	0,70mg/m³	0,45

The short-term exposure is covered by the assessment of long-term exposure. Qualitative assessment dermal. Qualitative approach used to conclude safe use.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.
Ensure that gas alarms are installed
Change gloves, if duration of activity exceeds breakthrough time

1. Short title of Exposure Scenario 9: Consumer use		
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)	
Chemical product category	PC34: Textile dyes, finishing and impregnating products; including bleaches and other processing aids PC35: Washing and cleaning products (including solvent based products) PC37: Water treatment chemicals	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8e: Wide dispersive outdoor use of reactive substances in open systems	
2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8d, ERC8e		
Substance is a unique structure, Non-hydrophobic. , Low potential to bioaccumulate.		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 10%
Amount used	Amounts used in the EU (tonnes/year)	999999 ton(s)/year
Frequency and duration of use	Continuous exposure	360 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Substance release to air can be excluded
	Water	Risk from environmental exposure is driven by freshwater., Do not release wastewater directly into environment., Onsite wastewater treatment required, No discharge of substance into waste water
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
2.2 Contributing scenario controlling consumer exposure for: PC35: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 0% - 3%
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	25 hPa
Amount used	Amount used per event	0,005 kg
Frequency and duration of use	Exposure duration	7,5 min
	Frequency of use	4 Times per day

Other given operational conditions affecting consumers exposure	Indoor use	
	Room size	4 m3
	Ventilation rate per hour	0,5
2.3 Contributing scenario controlling consumer exposure for: PC35		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 0% - 0,5%
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	25 hPa
Frequency and duration of use	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin area	Palm of one Hand 420 cm²
Other given operational conditions affecting consumers exposure	Indoor use	
	Room size	4 m3
	Ventilation rate per hour	0,5
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Wear impervious chemical resistant protective gloves.
2.4 Contributing scenario controlling consumer exposure for: PC34		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 0% - 0.05%
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	25 hPa
Frequency and duration of use	Frequency of use	2 days/week
Human factors not influenced by risk management	Exposed skin area	Two hands 820 cm²
Other given operational conditions affecting consumers exposure	Indoor use	
	Room size	4 m3
	Ventilation rate per hour	0,5
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Wear impervious chemical resistant protective gloves.
2.5 Contributing scenario controlling consumer exposure for: PC37		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 0% - 0,1%
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	25 hPa
Amount used		2000 mL
Frequency and duration of use	Frequency of use	1 Times per day

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Consumers

PC34, PC35: EU RAR

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PC34	Laundry bleaching/pre-treatment	Consumer - inhalative, long-term - systemic	1,68µg/m³	0,000108
PC35	Hard surface cleaning	Consumer - inhalative, long-term - systemic	1,68µg/m³	0,000108
PC34	Laundry bleaching/pre-treatment	Consumer - dermal, short-term - local	0,035mg/kg bw/day	< 1
PC35	Hard surface cleaning	Consumer - dermal, short-term - local	0,002mg/kg bw/day	< 1
---	Drinking water, adult	Consumer oral, acute	0,0003mg/kg bw/day	---
---	Drinking water, adult	Consumer oral, long-term	0,003mg/kg bw/day	0,011
---	Drinking water, children	Consumer oral, acute	0,0007mg/kg bw/day	---
---	Drinking water, children	Consumer oral, long-term	0,0033mg/kg bw/day	0,011

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

ConnectingChemistry

BRENNTAG

SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006

HYDROCHLORIC ACID 9% / DR 209 KG

Version 8.0 Print Date 11.03.2021

Revision date / valid from 10.03.2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name	:	HYDROCHLORIC ACID 9% / DR 209 KG
Substance name	:	hydrochloric acid
Index-No.	:	017-002-01-X
CAS-No.	:	7647-01-0
EC-No.	:	231-595-7
EU REACH-Reg. No.	:	01-2119484862-27-xxxx

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture	:	Used as:, Industrial use, Chemical intermediate, pH-regulating agents, Cleaning agent, Water treatment chemical, metal treatment, Identified use: See table in front of appendix for a complete overview of identified uses.
Uses advised against	:	At this moment we have not identified any uses advised against

1.3. Details of the supplier of the safety data sheet

Company	:	Brenntag Nordic AB Hyllie Stationstorg 31 SE 215 32 Malmö
Telephone	:	+46 (0)40-28 73 00
Telefax	:	+46 (0)40-93 7015
E-mail address	:	SDS.SE@brenntag-nordic.com
Responsible/issuing person	:	Environment & Quality

1.4. Emergency telephone number

Emergency telephone number	:	In case of personal injury call: Denmark: 82 12 12 12 Giftlinien, Bispebjerg Hospital Finland: Poison Information Centre: (09) 471 977 (direct) or (09) 47 11 (exchange), open 24h/day Norway: 22 59 13 00 Giftinformasjonen (døgnåpent) Sweden: +46-8-331231 Giftinformationscentralen (24 hour service) Outside these countries: Please call your local emergency services

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

REGULATION (EC) No 1272/2008			
Hazard class	**Hazard category**	**Target Organs**	**Hazard statements**
Corrosive to metals	Category 1	---	H290
Serious eye damage	Category 1	---	H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

Most important adverse effects

Human Health : Inhalation may cause the following effects:, Inhalation may cause pain and cough.
Skin contact may cause the following effects:, Prolonged skin contact may cause skin irritation.
Eye contact may cause the following effects:, Causes serious eye damage.
Ingestion may cause the following effects:, Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

Physical and chemical hazards : In case of fire hazardous decomposition products may be produced such as:, Hydrogen chloride gas, Gives off hydrogen by reaction with metals.

Potential environmental effects : Harmful effects to aquatic organisms also due to pH-shift.

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard symbols :

Signal word : Danger

Hazard statements : H290 May be corrosive to metals.
H318 Causes serious eye damage.

Precautionary statements

Prevention : P234 Keep only in original packaging.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response	:	P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
		P390	Absorb spillage to prevent material damage.

Hazardous components which must be listed on the label:

- hydrochloric acid

2.3. Other hazards

For Results of PBT and vPvB assessment see section 12.5.

SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical nature : Aqueous solution

Hazardous components	Amount [%]	Classification (REGULATION (EC) No 1272/2008)	
		Hazard class / Hazard category	Hazard statements
hydrochloric acid			
Index-No. : 017-002-01-X CAS-No. : 7647-01-0 EC-No. : 231-595-7 EU REACH-Reg. No. : 01-2119484862-27-xxxx	> 8 - <= 9	Met. Corr.1 Skin Corr.1A Eye Dam.1 STOT SE3	H290 H314 H318 H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice	: Take off all contaminated clothing immediately.
If inhaled	: Remove to fresh air. If symptoms persist, call a physician.
In case of skin contact	: Wash off with soap and water. If skin irritation persists, call a physician.

In case of eye contact	: Rinse immediately with plenty of water, also under the eyelids, for at least 10 minutes. Consult an eye specialist immediately.
If swallowed	: Rinse mouth with water. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.
Protection of First Aid Responders	: First Aid responders should pay attention to self-protection and use the recommended protective clothing.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms	: See Section 11 for more detailed information on health effects and symptoms.
Effects	: Health injuries are not known or expected under normal use. See Section 11 for more detailed information on health effects and symptoms.

4.3. Indication of any immediate medical attention and special treatment needed

Treatment	: Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	:	High volume water jet

5.2. Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	Contact with metals liberates hydrogen gas. In case of fire hazardous decomposition products may be produced such as:
Hazardous combustion products	:	Hydrogen chloride gas

5.3. Advice for firefighters

Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus.Choose protective equipment according to size of fire.
Further advice	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Use personal protective equipment. Ensure adequate

ventilation. Avoid contact with skin and eyes.

6.2. Environmental precautions

Environmental precautions	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration. If the product contaminates rivers and lakes or drains inform respective authorities. If material reaches soil inform authorities responsible for such cases.

6.3. Methods and materials for containment and cleaning up

Methods and materials for containment and cleaning up	:	Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders). Keep in suitable, closed containers for disposal.
Further information	:	Treat recovered material as described in the section "Disposal considerations".

6.4. Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on personal protective equipment.
See Section 13 for waste treatment information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling	:	Keep container tightly closed. Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice.
Advice on safe handling	:	Emergency eye wash fountains and emergency showers should be available in the immediate vicinity.
Hygiene measures	:	Keep away from food, drink and animal feedingstuffs. Smoking, eating and drinking should be prohibited in the application area. Wash hands before breaks and at the end of workday. Take off all contaminated clothing immediately.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Store in original container. Keep in an area equipped with acid resistant flooring. Suitable materials for containers: polyethylene; Polypropylene; Unsuitable materials for containers: Metals
Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Further information on storage conditions	:	Keep tightly closed in a dry and cool place.
Advice on common storage	:	Keep away from food, drink and animal feedingstuffs. Keep away from metals.

7.3. Specific end use(s)

Specific use(s) : Identified use: See table in front of appendix for a complete overview of identified uses.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Component:	hydrochloric acid	CAS-No. 7647-01-0

Derived No Effect Level (DNEL)/Derived Minimal Effect Level (DMEL)

DNEL
Workers, Acute - local effects, Inhalation : 15 mg/m3

DNEL
Workers, Long-term - local effects, Inhalation : 8 mg/m3

Predicted No Effect Concentration (PNEC)

Fresh water : 36 µg/l

Marine water : 36 µg/l

Intermittent releases : 45 µg/l

Sewage treatment plant (STP) : 36 µg/l

Fresh water sediment :
Exposition is not expected.

Marine sediment :
Exposition is not expected.

Soil : 0,036 mg/kg

Other Occupational Exposure Limit Values

EU. Indicative Occupational Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, as amended, Time Weighted Average (TWA):
5 ppm, 8 mg/m3
Indicative

EU. Indicative Occupational Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, as amended, Short Term Exposure Limit (STEL):
10 ppm, 15 mg/m3
Indicative

Sweden. Occupational Exposure Limit Values, as amended, Short Term Exposure Limit
4 ppm, 6 mg/m3

Sweden. Occupational Exposure Limit Values, as amended, Time Weighted Average (TWA):
2 ppm, 3 mg/m3

8.2. Exposure controls

Appropriate engineering controls

Refer to protective measures listed in sections 7 and 8.

Personal protective equipment

Respiratory protection

Advice	:	Required, if exposure limit is exceeded (e.g. OEL). Respiratory protection complying with EN 141. Recommended Filter type: Combination filter:B-P2
Advice	:	Combination filter:E-P2

Hand protection

Advice	:	Protective gloves complying with EN 374. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Protective gloves should be replaced at first signs of wear.
Material	:	Natural Rubber
Break through time	:	> 480 min
Glove thickness	:	0,5 mm
Material	:	polychloroprene
Break through time	:	> 480 min
Glove thickness	:	0,5 mm
Material	:	Nitrile rubber
Break through time	:	> 480 min
Glove thickness	:	0,35 mm
Material	:	butyl-rubber
Break through time	:	> 480 min
Glove thickness	:	0,5 mm

Material	:	Fluorinated rubber
Break through time	:	> 480 min
Glove thickness	:	0,4 mm

Material	:	Polyvinylchloride
Break through time	:	> 480 min
Glove thickness	:	0,5 mm

Eye protection

Advice	:	Safety goggles

Skin and body protection

Advice	:	Protective work clothing

Environmental exposure controls

General advice	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration. If the product contaminates rivers and lakes or drains inform respective authorities. If material reaches soil inform authorities responsible for such cases.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Form	:	liquid
Colour	:	colourless
Odour	:	stinging
Odour Threshold	:	no data available
pH	:	-0,5 - 0,5 (100 %) ((calculated))
Freezing point/range	:	< 0 °C (1013 hPa)
Boiling point/boiling range	:	> 100 °C (1013 hPa)
Flash point	:	Not applicable
Evaporation rate	:	no data available
Flammability (solid, gas)	:	Not applicable
Upper explosion limit	:	Not applicable
Lower explosion limit	:	Not applicable

Vapour pressure	:	no data available
Relative vapour density	:	no data available
Density	:	ca. 1,04 g/cm3 (20 °C)
Water solubility	:	completely miscible
Partition coefficient: n-octanol/water	:	no data available
Auto-ignition temperature	:	Not applicable
Thermal decomposition	:	Heating can release hazardous gases.
Viscosity, dynamic	:	no data available
Viscosity, kinematic	:	no data available
Explosivity	:	Product is not explosive.
Oxidizing properties	:	no data available

9.2. Other information

Corrosion to metals	:	Corrosive to metals

SECTION 10: Stability and reactivity

10.1. Reactivity

Advice	:	Is corrosive to metals.

10.2. Chemical stability

Advice	:	Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions	:	Gives off hydrogen by reaction with metals.
Hazardous reactions	:	May develop chlorine if mixed with sodium hypochlorite or oxidizing agents (e.g. potassium permanganate, magnesium oxide and hydrogen peroxide).

10.4. Conditions to avoid

Conditions to avoid	:	Protect from frost, heat and sunlight.
Thermal decomposition	:	Heating can release hazardous gases.

10.5. Incompatible materials

Materials to avoid	:	Metals, Oxidizing agents, Reducing agents, ammonia

10.6. Hazardous decomposition products

Hazardous decomposition products	:	In case of fire hazardous decomposition products may be produced such as: Hydrogen chloride gas

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Data for the product		
Acute toxicity		
Oral		
		Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.
Inhalation		
		Inhalation may cause pain and cough.
Dermal		
		Not classified based on the calculation method according to CLP regulation.
Irritation		
Skin		
Result	:	Prolonged skin contact may cause skin irritation.
Eyes		
Result	:	Causes serious eye damage.
Sensitisation		
Result	:	Not classified based on the calculation method according to CLP regulation.
CMR effects		
CMR Properties		
Carcinogenicity	:	Not classified based on the calculation method according to CLP regulation.
Mutagenicity	:	Not classified based on the calculation method according to CLP regulation.
Reproductive toxicity	:	Not classified based on the calculation method according to CLP regulation.
Specific Target Organ Toxicity		
Single exposure		
Remarks	:	Not classified based on the calculation method according to CLP regulation.

Repeated exposure		
Remarks	:	Not classified based on the calculation method according to CLP regulation.
Other toxic properties		
Repeated dose toxicity		
		no data available
Aspiration hazard		
		Not applicable,
Component:	**hydrochloric acid**	**CAS-No. 7647-01-0**
Acute toxicity		
Oral		
LD50	:	2222 mg/kg (Rat) (Calculation method)
Inhalation		
LC50	:	45,6 mg/l (Rat, male; 5 min) (No guideline followed)
Dermal		
LD50 Dermal	:	> 5010 mg/kg (Rabbit) 31.5 % solution
Irritation		
Skin		
Result	:	corrosive effects (Rabbit; 1 - 4 h) (OECD Test Guideline 404)
Eyes		
Result	:	Causes serious eye damage. (Rabbit) (OECD Test Guideline 405)
Sensitisation		
Result	:	not sensitizing (Guinea pig) (Maximisation Test)
CMR effects		
CMR Properties		

Carcinogenicity	:	Did not show carcinogenic effects in animal experiments.
Mutagenicity	:	In vitro tests did not show mutagenic effects
Teratogenicity	:	No valid data available.
Reproductive toxicity	:	Animal testing did not show any effects on fertility.

Genotoxicity in vitro

Result	:	negative (Ames test; Salmonella typhimurium; with and without metabolic activation) negative (Cytogenetic test; Mouse; with and without metabolic activation)

Specific Target Organ Toxicity

Single exposure

Inhalation	:	Target Organs: Respiratory systemMay cause respiratory irritation.

Repeated exposure

Remarks	:	The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Other toxic properties

Repeated dose toxicity

NOAEC	:	15 mg/m³ (Rat)(Inhalation)

Aspiration hazard

Not applicable,

SECTION 12: Ecological information

12.1. Toxicity

Component:	hydrochloric acid	CAS-No. 7647-01-0

Acute toxicity

Fish

LC50	:	20,5 mg/l (Lepomis macrochirus; 24 h)

Toxicity to daphnia and other aquatic invertebrates		
EC50	:	0,45 mg/l (Daphnia magna; 48 h) (OECD Test Guideline 202)

algae		
ErC50	:	0,73 mg/l (Chlorella vulgaris (Fresh water algae); 72 h) (End point: Growth rate; OECD Test Guideline 201)

Bacteria		
EC50	:	0,23 mg/l (activated sludge; 3 h) (End point: Respiration inhibition; OECD Test Guideline 209)

M-Factor		
M-Factor (Acute Aquat. Tox.)	:	1

12.2. Persistence and degradability

Component:	hydrochloric acid	CAS-No. 7647-01-0
Persistence and degradability		
Persistence		
Result	:	The product is water soluble.
Biodegradability		
Result	:	The methods for determining the biological degradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Component:	hydrochloric acid	CAS-No. 7647-01-0
Bioaccumulation		
Result	:	Bioaccumulation is not expected.

12.4. Mobility in soil

Component:	hydrochloric acid	CAS-No. 7647-01-0
	Mobility	

Soil	:	Not expected to adsorb on soil.
Water	:	The product is water soluble.

12.5. Results of PBT and vPvB assessment

Component:	hydrochloric acid	CAS-No. 7647-01-0
	Results of PBT and vPvB assessment	

Result	:	The PBT or vPvB criteria of Annex XIII to the REACH Regulation does not apply to inorganic substances.

12.6. Other adverse effects

Data for the product
Additional ecological information

Result	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product	:	Eliminate waste in conditions authorized by the regulations. Store waste in containers provided for this purpose. Do not dump in drains, water sheets or the ground.
Contaminated packaging	:	Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning. If recycling is not practicable, dispose of in compliance with local regulations.
European Waste Catalogue Number	:	No waste code according to the European Waste Catalogue can be assigned for this product, as the intended use dictates the assignment. The waste code is established in consultation with the regional waste disposer.

SECTION 14: Transport information

14.1. UN number

1789

14.2. UN proper shipping name

ADR : HYDROCHLORIC ACID
RID : HYDROCHLORIC ACID
IMDG : HYDROCHLORIC ACID

14.3. Transport hazard class(es)

ADR-Class	: 8
(Labels; Classification Code; Hazard Identification Number; Tunnel restriction code)	8; C1; 80; (E)
RID-Class	: 8
(Labels; Classification Code; Hazard Identification Number)	8; C1; 80
IMDG-Class	: 8
(Labels; EmS)	8; F-A, S-B

14.4. Packaging group

ADR	: III
RID	: III
IMDG	: III

14.5. Environmental hazards

Environmentally hazardous according to ADR	: no
Environmentally hazardous according to RID	: no
Marine Pollutant according to IMDG-Code	: no

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

IMDG : Not applicable.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Data for the product

EU. REACH, Annex XVII, Marketing and Use Restrictions (Regulation 1907/2006/EC)	:	Point Nos.: , 3; Listed
Other regulations	:	Only persons, who are thoroughly instructed in the dangerous properties and the necessary safety precautions of the substance, are allowed to work with it. Exposure limits in accordance to local regulations

Component:	hydrochloric acid	CAS-No. 7647-01-0

EU. Chemicals Subject to PIC Procedure: Regulation 649/2012/EU on export and import of dangerous chemicals, as amended	:	; The substance/mixture does not fall under this legislation.
EU. Regulation 273/2004, Drug Precursors, Category 3	:	Scheduled substance Combined Nomenclature (CN) code: , 2806 10 00; Combined Nomenclature designation
EU. REACH, Annex XVII, Marketing and Use Restrictions (Regulation 1907/2006/EC)	:	Point Nos.: , 3; Listed
EU. Directive 98/8/EC, Annex 1, Active substances in biocidal products	:	Minimum purity: 999, g/kg; Disinfectants and algaecides not intended for direct application to humans or animals; Special provisions may apply; see text of legislation. Deadline for Compliance: , 30 Apr 2016 Inclusion Date: , 1 May 2014 Expiry Date of Inclusion: , 30 Apr 2024
EU. Regulation No 1451/2007 [Biocides], Annex I, OJ (L 325)	:	EC Number: , 231-595-7; Listed
EU. Directive 2012/18/EU (SEVESO III) Annex I	:	; The substance/mixture does not fall under this legislation.

Notification status hydrochloric acid:

Regulatory List	Notification	Notification number
AICS	YES	
DSL	YES	
EINECS	YES	231-595-7
ENCS (JP)	YES	(1)-215

IECSC	YES	
ISHL (JP)	YES	(1)-215
KECI (KR)	YES	97-1-203
KECI (KR)	YES	KE-20189
NZIOC	YES	HSR004090
PICCS (PH)	YES	
TSCA	YES	

15.2. Chemical safety assessment

A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.

Abbreviations and Acronyms

BCF	bioconcentration factor
BOD	biochemical oxygen demand
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging
CMR	carcinogenic, mutagenic or toxic to reproduction
COD	chemical oxygen demand
DNEL	derived no-effect level
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
LC50	median lethal concentration
LOAEC	lowest observed adverse effect concentration
LOAEL	lowest observed adverse effect level
LOEL	lowest observed effect level
NLP	no-longer polymer
NOAEC	no observed adverse effect concentration
NOAEL	no observed adverse effect level
NOEC	no observed effect concentration
NOEL	no observed effect level
OECD	Organisation for Economic Cooperation and Development
OEL	occupational exposure limit

PBT	persistent, bioaccumulative and toxic
REACH Auth. No.:	REACH Authorisation Number
REACH AuthAppC. No.	REACH Authorisation Application Consultation Number
PNEC	predicted no-effect concentration
STOT	specific target organ toxicity
SVHC	substance of very high concern
UVCB	substance of unknown or variable composition, complex reaction products or biological materials
vPvB	very persistent and very bioaccumulative

Further information

Key literature references and sources for data	:	Supplier information and data from the "Database of registered substances" of the European Chemicals Agency (ECHA) were used to create this safety data sheet.
Methods used for product classification	:	The classification for human health, physical and chemical hazards and environmental hazards were derived from a combination of calculation methods and if available test data.
Hints for trainings	:	The workers have to be trained regularly on the safe handling of the products based on the information provided in the Safety Data Sheet and the local conditions of the workplace. National regulations for the training of workers in the handling of hazardous materials must be adhered to.
Other information	:	The information provided in this Safety Data Sheet is correct to our knowledge at the date of its revision. The information given only describes the products with regard to safety arrangements and is not to be considered as a warranty or quality specification and does not constitute a legal relationship. The information contained in this Safety Data Sheet relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

|| Indicates updated section.

HYDROCHLORIC ACID 9% / DR 209 KG

No.	Short title	Main User Group (SU)	Sector of Use (SU)	Product Category (PC)	Process Category (PROC)	Environmental Release Category (ERC)	Article Category (AC)	Specified
1	Manufacture of substance	3	8, 9	NA	1, 2, 3, 4, 8a, 8b, 9, 15	1, 2	NA	ES0004963
2	Formulation & (re)packing of substances and mixtures	3	10	NA	1, 2, 3, 4, 5, 8a, 8b, 9	2	NA	ES0004648
3	Use as an intermediate	3	4, 8, 9, 11, 12, 13, 19	NA	1, 2, 3, 4, 9, 15	6a	NA	ES0004629
4	Industrial use	3	2a, 2b, 5, 14, 15, 16	NA	1, 2, 3, 4, 9, 10, 13, 15, 19	4, 6b	NA	ES0004683
5	Professional use	22	20, 23	NA	1, 2, 3, 4, 8a, 10, 11, 13, 15, 19	8a, 8b, 8e	NA	ES0004748
6	Consumer use	21	NA	20, 21, 35, 37, 38	NA	8b, 8e	NA	ES0004794

1. Short title of Exposure Scenario 1: Manufacture of substance		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Sectors of end-use	SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals	
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC15: Use as laboratory reagent	
Environmental Release Categories	ERC1: Manufacture of substances ERC2: Formulation of preparations	
2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC2		
No exposure assessment presented for the environment		
Amount used	Not applicable	
Frequency and duration of use	Continuous exposure	360 days/year
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Application Area	Industrial use
	Water	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
	Prevent leaks and prevent soil / water pollution caused by leaks. Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 40 %
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	0,5 - 10 kPa
	Process Temperature	20 °C
	Assumes use at not more than 20°C above ambient temperature., It should be noted that the process temperature may be higher, but the substance temperature is down to ambient at worker contact points.	
Amount used	Varies between milliliters (sampling) and cubic meters (material transfers).	
Frequency and duration of use	Exposure duration per day	480 min

	Exposure duration per day	< 60 min(Without Local Exhaust Ventilation PROC15)
	Frequency of use	5 days/week(Without Local Exhaust Ventilation PROC15)
Technical conditions and measures to control dispersion from source towards the worker	Avoid splashing.	
	Handle substance within a closed system.(PROC1, PROC2, PROC3)	
	Clear transfer lines prior to de-coupling.(PROC1, PROC2, PROC3, PROC4)	
	Ensure material transfers are under containment or extract ventilation. (Efficiency: 90 %)(PROC2, PROC3)	
	Use drum pumps. Use bulk or semi-bulk handling systems.(PROC4)	
	Provide extraction ventilation at points where emissions occur. (Efficiency: 90 %)(PROC4, PROC8a, PROC8b)	
	Handle substance within a predominantly closed system provided with extract ventilation.(PROC8a, PROC8b, PROC9)	
	Fill containers/cans at dedicated filling points supplied with local extract ventilation.(PROC9)	
	Handle in a fume cupboard or under extract ventilation. Carry out in a vented booth or extracted enclosure. (Efficiency: 80 %)(PROC15)	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures Ensure that no inhalable aerosols are generated	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable coveralls to prevent exposure to the skin. Use suitable eye protection. Wear chemically resistant gloves.	
Risk management measures are based on qualitative risk characterisation.		

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment. Substance will disassociate upon contact with water, the only effect is the pH effect, therefore after passing through the STP exposure is considered negligible and with no risk.

Workers

PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - local	0,02mg/m³	0
PROC2	---	Worker - inhalative, long-term - local	1,50mg/m³	0,2
PROC4	---	Worker - inhalative, long-term - local	3,00mg/m³	0,4
PROC3	---	Worker - inhalative, long-term - local	3,75mg/m³	0,5
PROC8a, PROC8b, PROC9	---	Worker - inhalative, long-term - local	7,50mg/m³	0,9
PROC15	---	Worker - inhalative, long-term - local	1,8mg/m³	0,9

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 2: Formulation & (re)packing of substances and mixtures		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Sectors of end-use	SU 10: Formulation [mixing] of preparations and/ or re-packaging (excluding alloys)	
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	
Environmental Release Categories	ERC2: Formulation of preparations	
Activity	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.	
2.1 Contributing scenario controlling environmental exposure for: ERC2		
No exposure assessment presented for the environment		
Amount used	Not applicable	
Frequency and duration of use	Continuous exposure	360 days/year
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Water	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
	Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases. Prevent leaks and prevent soil / water pollution caused by leaks.	
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 20 %.
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	0,5 - 10 kPa
	Process Temperature	20 °C
Amount used	Varies between milliliters (sampling) and cubic meters (material transfers).	
Frequency and duration of use	Exposure duration per day	< 8 h

	Frequency of use	5 days/week
Other operational conditions affecting workers exposure	Operation is carried out at elevated temperature (> 20°C above ambient temperature).	
Technical conditions and measures to control dispersion from source towards the worker	Ensure material transfers are under containment or extract ventilation. (Efficiency: 90 %)(PROC2, PROC3)	
	Drain down and flush system prior to equipment opening or maintenance.(PROC3, PROC4, PROC5)	
	Avoid splashing.(PROC9, PROC15)	
	Handle substance within a predominantly closed system provided with extract ventilation. (Efficiency: 90 %)(PROC8a, PROC8b, PROC9, PROC15)	
	Clear transfer lines prior to de-coupling. Handle substance within a closed system.(PROC1, PROC2, PROC3)	
	Use bulk or semi-bulk handling systems.(PROC4)	
	Provide extraction ventilation at points where emissions occur. (Efficiency: 90 %)(PROC4, PROC8a, PROC8b, PROC15)	
	Use drum pumps.(PROC4, PROC5)	
	Transfer materials directly to mixing vessels.(PROC5)	
	Fill containers/cans at dedicated filling points supplied with local extract ventilation. (Efficiency: 90 %)(PROC9, PROC15)	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable coveralls to prevent exposure to the skin. Use suitable eye protection. Wear chemically resistant gloves.	
	Wear suitable gloves tested to EN374.(PROC3)	
Risk management measures are based on qualitative risk characterisation.		

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment. Substance will disassociate upon contact with water, the only effect is the pH effect, therefore after passing through the STP exposure is considered negligible and with no risk.

Workers

PROC1: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - local	0,02mg/m3	0
PROC2	---	Worker - inhalative, long-term - local	1,50mg/m3	0,2
PROC3	---	Worker - inhalative, long-term - local	3,75mg/m³	0,5
PROC4	---	Worker - inhalative, long-term - local	3,00mg/m3	0,4
PROC5, PROC8a, PROC8b, PROC9	---	Worker - inhalative, long-term - local	7,50mg/m³	0,9

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 3: Use as an intermediate	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU4: Manufacture of food products SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals SU11: Manufacture of rubber products SU12: Manufacture of plastics products, including compounding and conversion SU13: Manufacture of other non-metallic mineral products, e.g. plasters, cement SU19: Building and construction work
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC15: Use as laboratory reagent
Environmental Release Categories	ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)
Activity	Note: this Exposure Scenario is only relevant for an appropriated use according to the quality grade of the substance delivered

2.1 Contributing scenario controlling environmental exposure for: ERC6a		
No exposure assessment presented for the environment		
Amount used	Not applicable	
Frequency and duration of use	Continuous exposure	360 days/year
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Water	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
	Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases. Prevent leaks and prevent soil / water pollution caused by leaks.	

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC9, PROC15		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 40 %
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	0,5 - 10 kPa
	Process Temperature	20 °C
	Assumes use at not more than 20°C above ambient temperature., It should be noted that the process temperature may be higher, but the substance temperature is down to ambient at worker contact points.	
Amount used	Varies between milliliters (sampling) and cubic meters (material transfers).	
Frequency and duration of use	Exposure duration per day	< 8 h

	Exposure duration per day	< 1 h(Without Local Exhaust Ventilation PROC15)
	Frequency of use	5 days/week(Without Local Exhaust Ventilation PROC15)
Technical conditions and measures to control dispersion from source towards the worker	Avoid splashing.	
	Handle substance within a closed system.(PROC1, PROC2, PROC3)	
	Clear transfer lines prior to de-coupling.(PROC1, PROC2, PROC3, PROC4)	
	Ensure material transfers are under containment or extract ventilation. (Efficiency: 90 %)(PROC2, PROC3)	
	Drain down and flush system prior to equipment opening or maintenance.(PROC3, PROC4)	
	Use drum pumps. Use bulk or semi-bulk handling systems.(PROC4)	
	Provide extraction ventilation at points where emissions occur. (Efficiency: 90 %)(PROC4)	
	Handle substance within a predominantly closed system provided with extract ventilation. Fill containers/cans at dedicated filling points supplied with local extract ventilation. (Efficiency: 90 %)(PROC9)	
	Handle in a fume cupboard or under extract ventilation. Carry out in a vented booth or extracted enclosure. (Efficiency: 80 %)(PROC15)	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures Ensure that no inhalable aerosols are generated	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable coveralls to prevent exposure to the skin. Use suitable eye protection. Wear chemically resistant gloves.	
	Wear suitable gloves tested to EN374.(PROC3)	
Risk management measures are based on qualitative risk characterisation.		

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment. Substance will disassociate upon contact with water, the only effect is the pH effect, therefore after passing through the STP exposure is considered negligible and with no risk.

Workers

PROC1: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - local	0,02mg/m3	0
PROC2	---	Worker - inhalative, long-term - local	1,50mg/m3	0,2
PROC3	---	Worker - inhalative, long-term - local	3,75mg/m³	0,5
PROC4	---	Worker - inhalative, long-term - local	3,00mg/m3	0,4
PROC9	---	Worker - inhalative, long-term - local	7,5mg/m³	0,9
PROC15	---	Worker - inhalative, long-term - local	1,8mg/m³	0,9

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the

Exposure Scenario

Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 4: Industrial use		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Sectors of end-use	SU2a: Mining, (without offshore industries) SU2b: Offshore industries SU5: Manufacture of textiles, leather, fur SU14: Manufacture of basic metals, including alloys SU15: Manufacture of fabricated metal products, except machinery and equipment SU16: Manufacture of computer, electronic and optical products, electrical equipment	
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC15: Use as laboratory reagent PROC19: Hand-mixing with intimate contact and only PPE available	
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC6b: Industrial use of reactive processing aids	
2.1 Contributing scenario controlling environmental exposure for: ERC4, ERC6b		
No exposure assessment presented for the environment		
Amount used	Not applicable	
Frequency and duration of use	Continuous exposure	360 days/year
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Water	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
	Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases. Prevent leaks and prevent soil / water pollution caused by leaks.	

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC9, PROC10, PROC13, PROC15, PROC19		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 40 %
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	0,5 - 10 kPa
	Process Temperature	< 100 °C
Amount used	Varies between milliliters (sampling) and cubic meters (material transfers).	
Frequency and duration of use	Exposure duration per day	< 8 h

	Exposure duration per day	< 1 h(Without Local Exhaust Ventilation PROC15)
	Frequency of use	5 days/week(Without Local Exhaust Ventilation PROC15)
Other operational conditions affecting workers exposure	Operation is carried out at elevated temperature (> 20°C above ambient temperature).(PROC13)	
Technical conditions and measures to control dispersion from source towards the worker	Clear transfer lines prior to de-coupling.(PROC1, PROC2, PROC3)	
	Handle substance within a closed system.(PROC1, PROC2, PROC3)	
	Ensure material transfers are under containment or extract ventilation. (Efficiency: 90 %)(PROC2, PROC3)	
	Drain down and flush system prior to equipment opening or maintenance.(PROC3, PROC4)	
	Use bulk or semi-bulk handling systems. Use drum pumps.(PROC4)	
	Provide extraction ventilation at points where emissions occur. (Efficiency: 90 %)(PROC4)	
	Handle substance within a predominantly closed system provided with extract ventilation. Fill containers/cans at dedicated filling points supplied with local extract ventilation. (Efficiency: 90 %)(PROC9)	
	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) (Efficiency: 90 %)(PROC10)	
	Provide extract ventilation to material transfer points and other openings. (Efficiency: 90 %)(PROC13)	
	Carry out in a vented booth provided with laminar airflow.(PROC13)	
	Handle in a fume cupboard or under extract ventilation. Carry out in a vented booth or extracted enclosure. (Efficiency: 80 %)(PROC15)	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable coveralls to prevent exposure to the skin. Use suitable eye protection. Wear chemically resistant gloves.	
	Wear suitable gloves tested to EN374.(PROC3, PROC10, PROC13, PROC19)	
	Do not carry out the operation for more than 15 min. without respiratory protection Wear a respirator conforming to EN140 with Type A filter or better.(PROC19)	
Risk management measures are based on qualitative risk characterisation.		

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment. Substance will disassociate upon contact with water, the only effect is the pH effect, therefore after passing through the STP exposure is considered negligible and with no risk.

Workers

PROC1: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - local	0,02mg/m³	0
PROC2	---	Worker - inhalative, long-term - local	1,50mg/m3	0,2
PROC3	---	Worker - inhalative, long-term - local	3,75mg/m³	0,5

PROC4, PROC9, PROC10, PROC13, PROC19	---	Worker - inhalative, long-term - local	3,00mg/m3	0,4
PROC15	---	Worker - inhalative, long-term - local	1,8mg/m³	0,9

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 5: Professional use		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Sectors of end-use	SU20: Health services SU23: Electricity, steam, gas water supply and sewage treatment	
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring PROC15: Use as laboratory reagent PROC19: Hand-mixing with intimate contact and only PPE available	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8e: Wide dispersive outdoor use of reactive substances in open systems	
Activity	Note: this Exposure Scenario is only relevant for an appropriated use according to the quality grade of the substance delivered	
2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8e		
No exposure assessment presented for the environment		
Frequency and duration of use	Continuous exposure	360 days/year
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Water	Ensure all waste water is collected and treated via a WWTP., All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
	Prevent leaks and prevent soil / water pollution caused by leaks.	
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC10, PROC11, PROC13, PROC15, PROC19		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 40 %
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	0,5 - 10 kPa
	Process Temperature	20 °C
	Assumes use at not more than 20°C above ambient temperature.	
Amount used	Varies between milliliters (sampling) and cubic meters (material transfers).	
Frequency and duration of use	Frequency of use	5 days/week
	Covers daily exposures up to 8 hours	
	Avoid carrying out operation for more than 15 minutes.(without respiratory protection PROC11, PROC19)	

	Avoid carrying out operation for more than 1 hour.(Without Local Exhaust Ventilation PROC15)
	Avoid carrying out operation for more than 4 hours.(PROC15)
Technical conditions and measures to control dispersion from source towards the worker	Handle substance within a closed system.(PROC1, PROC2, PROC3)
	Ensure material transfers are under containment or extract ventilation. (Efficiency: 90 %)(PROC2, PROC3, PROC4)
	Clear transfer lines prior to de-coupling.(PROC1, PROC2, PROC3, PROC4, PROC8a)
	Drain down and flush system prior to equipment opening or maintenance.(PROC3, PROC4)
	Use bulk or semi-bulk handling systems. Use drum pumps.(PROC4)
	Provide extraction ventilation at points where emissions occur. (Efficiency: 90 %)(PROC4, PROC8a, PROC11)
	Handle substance within a predominantly closed system provided with extract ventilation. (Efficiency: 90 %)(PROC8a)
	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) (Efficiency: 90 %)(PROC10)
	Carry out in a vented booth provided with laminar airflow. Allow time for product to drain from workpiece. Automate activity where possible.(PROC13)
	Provide extract ventilation to material transfer points and other openings. (Efficiency: 90 %)(PROC13)
	Handle in a fume cupboard or under extract ventilation. Carry out in a vented booth or extracted enclosure. (Efficiency: 80 %)(PROC15)
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures
	Ensure minimization of manual phases(PROC13)
	Avoid carrying out operation for more than 4 hours.(PROC15)
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable coveralls to prevent exposure to the skin. Use suitable eye protection. Wear chemically resistant gloves.
	Wear suitable gloves tested to EN374.(PROC3, PROC10, PROC11, PROC13, PROC19)
	Wear a half face respirator conforming to EN140 Type A filter or better(PROC11, PROC19)
	Do not carry out the operation for more than 15 min. without respiratory protection(PROC11, PROC19)
	Wear suitable gloves tested to EN374.(PROC3)
	Wear a respirator conforming to EN140 with Type A filter or better.
Risk management measures are based on qualitative risk characterisation.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment. Substance will disassociate upon contact with water, the only effect is the pH effect, therefore after passing through the STP exposure is considered negligible and with no risk.

Workers

PROC2: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC2	---	Worker - inhalative, long-term - local	1,50mg/m3	0,2
PROC3	---	Worker - inhalative, long-term - local	3,75mg/m³	0,5

PROC8a, PROC10, PROC13, PROC11, PROC19	---	Worker - inhalative, long-term - local	7,50mg/m³	0,9
PROC4	---	Worker - inhalative, long-term - local	3,00mg/m3	0,4
PROC15	---	Worker - inhalative, long-term - local	1,8mg/m³	0,9

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 6: Consumer use		
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)	
Chemical product category	PC20: Products such as pH-regulators, flocculants, precipitants, neutralization agents PC21: Laboratory chemicals PC35: Washing and cleaning products PC37: Water treatment chemicals PC38: Welding and soldering products (with flux coatings or flux cores.), flux products	
Environmental Release Categories	ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8e: Wide dispersive outdoor use of reactive substances in open systems	
2.1 Contributing scenario controlling environmental exposure for: ERC8b, ERC8e		
No exposure assessment presented for the environment		
Amount used	Not applicable	
Frequency and duration of use	Continuous exposure	360 days/year
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Water	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
	Prevent leaks and prevent soil / water pollution caused by leaks. Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.	

2.2 Contributing scenario controlling consumer exposure for: PC20, PC21, PC35, PC37, PC38		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 20 %.
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	0,5 - 10 kPa
	Process Temperature	20 °C
Amount used	Amount used per event	500 mL
Frequency and duration of use	Exposure duration per event	240 min
	Frequency of use	5 Times per year:
Human factors not influenced by risk management	Assumes use at not more than 20°C above ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Application Route	Consumer use
	Exposure routes	Dermal exposure
	Consumer Measures	The substance may cause local irritating effects No systemic effects. Always use protective gloves during the handling and application activities mentioned under the Product Categories above.
	Risk management measures are based on qualitative risk characterisation.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment. Substance will disassociate upon contact with water, the only effect is the pH effect, therefore after passing through the STP exposure is considered negligible and with no risk.

Consumers

Exposures have not been estimated as the substance only causes local dermal and/or inhalatory effects and no systemic effects. The use is assessed to be safe.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

EXHIBIT D

RULES AND REGULATIONS

Tenant shall faithfully observe and comply with the following Rules and Regulations. In the event of any conflicts between the Rules and Regulations and other provisions of this Lease, the latter shall control.

Absolutely **no alcohol or smoking** is allowed at the pools or at city parks. It is against the law and you could be arrested.

Children who are not water-safe or who are under the age of 13 may not come to family swim without adult supervision.

Do not engage any lifeguard in unnecessary conversation.

All persons using the pool and pool area shall immediately comply with the requests of a lifeguard, respecting matters of personal conduct in and about the pool and pool area. The Guards have the authority to enforce pool rules, including sending individuals out of the pool area if the rules are being disregarded.

Lifeguards may not use cell phones while on duty. The undivided attention of lifeguards must be given to swimmers and those on the pool deck.

The office phone may be used for emergencies only.

Gates must remain locked at all times unless a person is stationed at the gate. Gate guards are required to be present during family swim.

Both pools on the large pool covers must be removed before use; no one may swim with any cover in place on a pool. Please replace covers at the end of any swimming program to help us conserve fuel costs.

Care should be taken with shower controls. Several repairs have been needed because excessive force has been put upon the handles.

All guards must sign the logbook located in the office at the start and end of any shift.

Dogs are not allowed in the pool area.

Of special note to our very young swimmers: please wear bathing suits or special swimming pants, cloth diapers or swim diapers. The disposable diapers cause filter problems with the pool equipment.

Please use as little suntan lotion as possible. Excessive lotion changes the chemistry of the pool water and can cause rashes.

Lane lines interfere with the young swimmer programs. Please do not use them.

No glass containers are permitted at the pools.

The pools are for the use and enjoyment of all members and it is the responsibility of everyone to ensure safety rules are enforced at all times and that all areas are kept clean. Picnic tables are provided for eating and drinking as food and drinks are not allowed in the pool or on the pool deck.