

SAFETY DATA SHEET

M31034 - EU - BE



ACL® 60 Chlorinating Composition

SDS No.: M31034

Rev. Date: 11/05/2020

EXPOSURE SCENARIO PRODUCT LIST:
M31034-ES1,M31034-ES2,M31034-ES3,M31034-ES4,M31034-ES5,M31034-ES6

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifiers

Product Identifier:	ACL® 60 Chlorinating Composition
REACH Registration No.:	Troclosene sodium - 01-2119489371-33-0004.
CAS-No.:	2893-78-9
EC No.:	220-767-7
Substance / Mixture Name:	Troclosene sodium
Chemical Family:	CHLORINATED ISOCYANURATES
Synonyms:	Sodium dichloroisocyanurate, Sodium dichloro-s-triazinetrione, 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione,1,3-dichloro-, sodium salt, Troclosene sodium, SDCC, NaDCC, Dichloroisocyanuric acid sodium salt.

1.2 Relevant Identified Uses of the Substance or Mixture, and Uses Advised Against

Product Use:	Algaecide; Disinfectant; Sanitizer; Bactericide; Fungicide; Microbiocide / Microbiostat
Sector of Use (SU):	SU3 - Industrial uses: Uses of substances as such or in preparations* at industrial sites SU5 - Manufacture of textiles, leather, fur SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys) SU21 - Consumer uses: Private households (= general public = consumers) SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

ACL® 60 Chlorinating Composition

SDS No.: M31034

Rev. Date: 11/05/2020

Supersedes Date (EU): February-2018-01

Generic Use Conditions:

PROC 1 Use in closed process, no likelihood of exposure
 PROC 2 Use in closed, continuous process with occasional controlled exposure
 PROC 3 Use in closed batch process (synthesis or formulation)
 PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC 5 Mixing or blending in batch process for formulation of preparations and articles (multistage and/or significant contact)
 PROC 8a/b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at either dedicated and/or non-dedicated facilities
 PROC 9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC 10 Roller application or brushing
 PROC 13 Treatment of articles by dipping and pouring
 PROC 14 Production of preparations or articles by tableting, compression, extrusion, pelettisation
 PROC 15 Use a laboratory reagent

Application Conditions:

PC1 - Adhesives, sealants
 PC8 - Biocidal products (e.g. disinfectants, pest control)
 PC9 - Coatings and paints, fillers, putties, thinners
 PC15 Non-metal-surface treatment products
 PC20 pH-regulators, flocculants, precipitants, neutralization agents
 PC21 Laboratory chemicals
 PC23 Leather tanning, dye, finishing, impregnation and care products
 PC24 Lubricants, greases and release products
 PC33 Semiconductor
 PC34 Textile dyes, finishing and impregnating products
 PC35 Washing and cleaning products

Article 95 status: Occidental Chemical Belgium BVBA (Acting for Occidental Chemical Corporation (United States)) is listed on the Article 95 list for product types: 2,3,4,5,11

Biocides Product Type:

- PT2 - Private and public health area disinfectants and other biocidal products
- PT3 - Veterinary hygiene biocidal products
- PT4 - Food and feed area disinfectants
- PT5 - Drinking water disinfectants
- PT11 - Preservatives for liquid-cooling and processing systems

Restrictions on Use (United States): This is a pesticide product; do not use in a pesticide application that is not approved by the EPA.

Other Global Restrictions on Use: Other restrictions on use based on local, regional, or national regulations may exist and must be determined on a case-by-case basis.

Uses Advised Against: There are no uses advised against identified.

1.3 Details of the Supplier of the Safety Data Sheet

ACL® 60 Chlorinating Composition

SDS No.: M31034

Rev. Date: 11/05/2020

Supersedes Date (EU): February-2018-01

Company Identification:

Occidental Chemical Corporation
14555 Dallas Parkway, Suite 400, Dallas, Texas
75254-4300

Supplier:

Occidental Chemical Belgium bv
Nieuwlandlaan 111/202
B-3200 Aarschot
BE0472 793 539
tel 0032 16 47 98 90
mobile 0032 475 33 61 29
direct tel 0032 16 47 98 91

To Request an SDS: MSDS@oxy.com or 1-972-404-3245

Customer Service: 1-800-752-5151 or 1-972-404-3700

Email of competent person responsible for SDS: SDS_Tech@oxy.com

1.4 Emergency Telephone Number

Country Specific Poison Center Phone Number(s): United Kingdom: National Poisons Information Service, City Hospital, Birmingham B187QH, United Kingdom, +44 121 507 4123, allistervale(at)npis.org, sallybradberry(at)npis.org
Ireland: National Poisons Information Centre Beaumont Hospital, Beaumont, Dublin 9., Ireland+35318092566npicdublin@beaumont.ie

24 Hour Emergency Telephone Number(s): 1-800-733-3665 (U.S.); 32.3.575.55.55 (Europe); +(32)-28083237 (Belgium)

1.5 Additional Information

Supersedes Date (EU): February-2018-01

This Safety Data Sheet (SDS) has been prepared in accordance with Regulation (EU) 528/2012 and Regulation (EU) 2015/830.

This Safety Data Sheet (SDS) has been prepared in accordance with Directive 98/8/E and Directive 88/379/EEC

This SDS complies with the requirements of the Turkish By-Law on the Classification, Packaging and Labeling of Dangerous Substances and Preparations.

2. HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

The substance/preparation is classified in accordance with Directive 67/548/EEC, Directive 88/379/EEC, and CLP Regulation (EC) 1272/2008.

2.1 Classification of the substance or mixture

ACL® 60 Chlorinating Composition

SDS No.: M31034

Rev. Date: 11/05/2020

Supersedes Date (EU): February-2018-01

CLP Classification: DANGER

GHS: PHYSICAL HAZARD(S):	Oxidizing Solid - Category 2 - May intensify fire; oxidizer
GHS: CONTACT HAZARD - EYE:	Category 2 - Causes serious eye irritation
GHS: ACUTE TOXICITY - ORAL:	Category 4 - Harmful if swallowed
GHS: TARGET ORGAN TOXICITY (SINGLE EXPOSURE):	Category 3 - May cause respiratory tract irritation
GHS: HAZARDOUS TO AQUATIC ENVIRONMENT - ACUTE HAZARD:	Category 1 - Very toxic to aquatic life
GHS: HAZARDOUS TO AQUATIC ENVIRONMENT - CHRONIC HAZARD:	Category 1 - Very toxic to aquatic life with long lasting effects
GHS: SUPPLEMENTAL HAZARD:	Contact with acids liberates toxic gas

2.2 Label Elements**GHS SYMBOL:**

Oxidizer, Exclamation mark, Environmental Hazard

**GHS SIGNAL WORD: DANGER****GHS - Physical Hazard Statement(s)**

H272 - May intensify fire; oxidizer

GHS - Health Hazard Statement(s)

H302 - Harmful if swallowed

H319 - Causes serious eye irritation

H335 - May cause respiratory irritation

GHS - Environmental Hazard Statement(s)

H410 - Very toxic to aquatic life with long lasting effects

Supplemental Hazard Statement

EUH031- Contact with acids liberates toxic gas

GHS Precautionary Statement(s) - Prevention

P261 - Avoid breathing dust

P264 - Wash skin and contaminated clothing thoroughly after handling

P270 - Do not eat, drink or smoke when using this product

P271 - Use only outdoors or in a well-ventilated area

P273 - Avoid release to the environment

P280 - Wear protective gloves, protective clothing, eye and face protection

P210 - Keep away from heat, sparks, open flames, hot surfaces. - No smoking

P220 - Keep/ Store away from clothing and other combustible materials

GHS Precautionary Statement(s) - Response

P301 + P312 - IF SWALLOWED, Call a POISON CENTER or doctor/physician if you feel unwell

P330 - Rinse mouth if ingested

ACL® 60 Chlorinating Composition

SDS No.: M31034

Rev. Date: 11/05/2020

Supersedes Date (EU): February-2018-01

P305 + P351 + P338 - IF IN EYES - Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 P337 + P313 - If eye irritation persists: Get medical attention
 P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
 P312 - Call a POISON CENTER or doctor if you feel unwell
 P370 + P378 - In case of fire: Use flooding with copious amounts of water to extinguish. Do not use ABC fire extinguishers. Do not use dry chemicals, carbon dioxide, or halogenated extinguishing agents
 P391 - Collect spillage

GHS Precautionary Statement(s) - Storage

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
 P405 - Store in a secure manner

GHS Precautionary Statement(s) - Disposal

P501 - Dispose of contents and container in accordance with applicable local, regional, national, and/or international regulations

2.3 Other Hazards**Physical Hazards Not Otherwise Classified**

- Damp or wet material may generate nitrogen trichloride, an explosion hazard
- Heating over 115 °C (239 °F) may initiate a self-sustaining decomposition which releases large amounts of heat and gas including toxic fumes

Hazards from Company's GHS Self-Classification Not Otherwise Mentioned

- TOXIC IF INHALED
- CAUSES SEVERE SKIN BURNS AND EYE DAMAGE

Hazard Not Otherwise Classified (HNOC)-Health

- Contact with acids liberates toxic gas
- Damp or wet material may generate hazardous and toxic gases
- Contact with water slowly liberates irritating and hazardous chlorine containing gases
- Heating over 115 °C (239 °F) may initiate a self-sustaining decomposition which releases large amounts of heat and gas including toxic fumes
- Decomposes at temperatures above 210 °C (410 °F) with liberation of harmful gases

PBT and vPvB assessment: This product does not fulfill the criteria for persistence, bioaccumulation, and toxicity. Therefore, this substance is not considered a PBT or a vPvB substance.

Authorisation Number: This substance is not subject to authorisation

See Section 11: TOXICOLOGICAL INFORMATION

3. COMPOSITION/INFORMATION ON INGREDIENTS**3.1/2 Substance**

Component	EU: EINECS Nr.	REACH Reg. No.	CAS Number	Percent [%]	CLP Classification	PBT/PvB
Dichloroisocyanuric acid, sodium salt	220-767-7	01-2119489371-33-0004	2893-78-9	96 - 98	Acute Tox. 4 (H302)	Not a PBT/PvB

ACL® 60 Chlorinating Composition

SDS No.: M31034

Rev. Date: 11/05/2020

Supersedes Date (EU): February-2018-01

					Eye Irrit. 2 (H319) STOT SE 3 (H335) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410) Ox. Sol. 2 (H272) (EUH031)	
Water	231-791-2	-----	7732-18-5	0.5 - 3	Not classified	Not a PBT/PvB
Sodium Chloride	231-598-3	-----	7647-14-5	0.1 - 1	Not classified	Not a PBT/PvB

3.3 Additional Information

For the full text of physical and health codes mentioned in this Section, see Section 2 or Section 16.

4. FIRST AID MEASURES**4.1 Description of first aid measures**

INHALATION: IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician.

SKIN CONTACT: IF ON SKIN (or hair): Immediately remove all contaminated clothing. Rinse skin with water/shower. IF EXPOSED: Immediately call a POISON CENTER OR PHYSICIAN.

EYE CONTACT: 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 or doctor/physician.

INGESTION: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth. Do NOT induce vomiting.

Protection of First-Aiders: Protect yourself by avoiding contact with this material. Use personal protective equipment. Refer to Section 8 for specific personal protective equipment recommendations. Avoid contact with skin and eyes. Do not ingest. At minimum, treating personnel should utilize PPE sufficient for prevention of bloodborne pathogen transmission.

4.2 Most important symptoms and effects, both acute and delayed

Acute Symptoms/Effects: .

Inhalation (Breathing):

Respiratory System Effects. Exposure to the solid product or to free chlorine evolving from the product may cause irritation, redness of upper and lower airways, coughing, laryngospasm and edema, shortness of breath, bronchoconstriction, and possible pulmonary edema. The pulmonary edema may develop several hours after a severe acute exposure. Please refer to Section 11 for additional information.

Skin:

ACL® 60 Chlorinating Composition

SDS No.: M31034

Rev. Date: 11/05/2020

Supersedes Date (EU): February-2018-01

Skin Corrosion. Exposure to solid along with moisture may cause redness, irritation, burning sensation, swelling, blister formation, first, second, or third degree burns.

Eye:

Serious Eye Damage. Exposure to eyes may cause irritation and burns to the eye-lids, conjunctivitis, corneal edema, and corneal burn. Significant and prolonged contact may cause damage to internal eye structures.

Ingestion (Swallowing):

Gastrointestinal Effects. Exposure by ingestion may cause irritation, nausea, and vomiting. May cause local tissue damage to esophagus and stomach such as burning, inflammation, local ulceration, and may cause gastrointestinal bleeding.

Delayed Symptoms/Effects:

- Repeated and prolonged skin contact may cause a dermatitis

4.3 Indication of any immediate medical attention and special treatment needed

Medical Conditions Aggravated by Exposure: May aggravate preexisting conditions such as eye disorders that decrease tear production or have reduced integrity of the eye; skin disorders that compromise the integrity of the skin; and respiratory conditions including asthma and other breathing disorders.

Notes to Physician: Treat as a corrosive substance. This material is more irritating to the skin and eyes in the presence of water. For prolonged exposures and significant exposures, consider delayed injury to exposed tissues. There is no antidote. Cyanuric acid is readily removed from the body via the renal system, and is not bioaccumulated. Treatment is supportive care. Follow normal parameters for airway, breathing, and circulation.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Extinguishing Media: Flood with copious amounts of water.

Extinguishing Media NOT to be Used for Safety Reasons:

DO NOT use ABC or other dry chemical extinguishers. There is the potential for a violent reaction if extinguishing with ABC or other dry chemical extinguishers. DO NOT USE carbon dioxide as an extinguishing agent. DO NOT USE halogenated extinguishing agents.

5.2 Special hazards arising from the substance or mixture

Fire Hazard: According to NFPA 400, this material is classified as a Class 2 Oxidizer. Class 2 Oxidizers will increase the burning rate of combustible materials with which they come in contact. In addition, they may cause spontaneous ignition when in contact with a combustible material. Wet material may generate nitrogen trichloride, an explosion hazard. If heated by outside source to temperatures above > 210 °C (410 °F), this product will undergo decomposition with the evolution of noxious gases but no visible flame.

Explosive properties: Damp or wet material may generate nitrogen trichloride, an explosion hazard. See Section 10 for stability and reactivity precautions.

Hazardous Combustion Products: Chlorine, Nitrogen, Nitrogen trichloride, Cyanogen chloride, Oxides of carbon, Phosgene

ACL® 60 Chlorinating Composition

SDS No.: M31034

Rev. Date: 11/05/2020

Supersedes Date (EU): February-2018-01

Specific Hazards: STRONG OXIDIZING AGENT.**Unusual Hazards:** Material which appears undamaged except for being damp on the outside, should be opened and inspected immediately. Use extreme caution when inspecting damaged packaging as damp or wet material may generate nitrogen trichloride, an explosion hazard and/or other hazardous and toxic gases.

5.3 Advice for firefighters

Fire Fighting: Consider evacuation of personnel located downwind. Keep unnecessary people away, isolate hazard area and deny entry. Move container from fire area if it can be done without risk. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Wear NIOSH approved positive-pressure self-contained breathing apparatus operated in pressure demand mode. Material which appears undamaged except for being damp on the outside, should be opened and inspected immediately. DO NOT attempt to reseal contaminated drums. Damp material should be neutralized to a non-oxidizing state. Contact OxyChem for instructions for handling and disposal of damp material.

5.4 Additional fire hazard information

Sensitivity to Mechanical Impact: Not sensitive.**Sensitivity to Static Discharge:** Not sensitive.**Flash point:** Not applicable**Autoignition Temperature:** Not determined**GHS: PHYSICAL HAZARD(S):**

Oxidizing Solid - Category 2 - May intensify fire; oxidizer

Physical Hazards Not Otherwise Classified

- Damp or wet material may generate nitrogen trichloride, an explosion hazard
 - Heating over 115 °C (239 °F) may initiate a self-sustaining decomposition which releases large amounts of heat and gas including toxic fumes
-

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment, and emergency procedures

Personal Precautions:

Keep unnecessary and unprotected persons away. Isolate hazard area and deny entry. Do not get in eyes, on skin or on clothing. Do not breathe dust, fume, gas, mist, vapors, or spray. Wear appropriate personal protective equipment recommended in Section 8, Exposure Controls / Personal Protection, of the SDS.

Personal protective equipment

For Unknown Concentrations or exposures above IDLH (Immediately Dangerous to Life or Health) - Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece. See section 8 for information on personal protective equipment.

6.2 Environmental Precautions

ACL® 60 Chlorinating Composition

SDS No.: M31034

Rev. Date: 11/05/2020

Supersedes Date (EU): February-2018-01

This material is very toxic to aquatic life. This material is very toxic to aquatic life with long lasting effects. Keep out of water supplies and sewers. Releases should be reported, if required, to appropriate agencies.

6.3 Methods and material for containment and cleaning up

Methods and Materials for Containment, Confinement, and/or Abatement:

DO NOT add water to spilled material. DO NOT use floor sweeping compounds to clean up spills. Sweep and scoop spilled material into clean, dedicated equipment. Every attempt should be made to avoid mixing spilled material with other chemicals or debris when cleaning up. DO NOT attempt to reseal contaminated drums. DO NOT transport wet or damp material. Damp material should be neutralized to a non-oxidizing state.

Recovery: Contain spilled material. Any spillage of ACL products should be cleaned up as soon as possible to prevent contamination with foreign materials with which it may react. Floor sweeping compounds should not be used. KEEP SPILLED MATERIAL DRY. If allowed to stand in damp or wet areas, tear producing vapors may result. Keep unneutralized ACL out of sewers, watersheds and water systems. Using clean, dedicated equipment, sweep and scoop up all spilled material, contaminated soil and other contaminated material and place into clean dry containers for disposal. Complete cleanup on a dry basis if possible. Sweeping compounds or other contaminants should not be mixed with ACL during this cleanup operation as fuming, fire or explosion may result. Follow all protective measures indicated in the "Personal Precautions and Personal Protective Equipment" sections of this document.

Neutralization: The neutralization process involves the addition of waste ACL products to alkaline aqueous solutions maintained at a pH of 10.5 (e.g. sodium hydroxide; sodium carbonate; or sodium sulfite). At this pH (10.5), the major fraction of chlorine is destroyed by chemical reactions between chlorine and cyanuric acid contained in the waste ACL. THIS PROCESS SHOULD ONLY BE CARRIED OUT AFTER CAREFULLY REVIEWING THE ACL® WASTE NEUTRALIZING PROCEDURE PROVIDED BY OXYCHEM TECHNICAL SERVICE

Final Disposal: For waste disposal, see section 13

6.4 Reference to other sections

Reference to other sections: See section 8 for information on personal protective equipment. See section 13 for disposal information. See section 7 for storage and handling information.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Technical measures/precautions: Due to the thermal decomposition properties of ACL 60, friction-producing equipment, such as screw conveyors or items with internal bearings, should be avoided whenever possible.

Prevention of contact: Provisions should be made to open and use ACL containers in well-ventilated work areas to protect handlers from excessive chlorine odor and dust. See Section 8, Exposure Controls and Personal Protection, for additional information.

Precautions for Safe Handling: Do not get in eyes, on skin, or on clothing. Avoid breathing vapors or dust when opening container. Avoid creation of dust. Wash thoroughly after handling. Wear personal protective equipment as described in Exposure Controls/Personal Protection (Section 8) of the SDS. NEVER add water to this product. Always add product to large quantities of water. Use clean, dry utensils. Do not add the product to any dispensing device containing residuals of other products. Take precautions to avoid mixing with combustible or incompatible materials.

7.2 Conditions for safe storage, including any incompatibilities

ACL® 60 Chlorinating Composition

SDS No.: M31034

Rev. Date: 11/05/2020

Supersedes Date (EU): February-2018-01

Safe Storage Conditions: Store and handle in accordance with all current regulations and standards. (NFPA Oxidizer Class 2). Do not allow water to get in container. If liner is present, tie after each use. Keep container tightly closed and properly labeled. Store containers on pallets. Keep away from food, drink and animal feed. Keep separated from incompatible substances (see below or Section 10 of the Safety Data Sheet).

Technical measures ACL should be stored in a cool (temperatures not to exceed 125°F for 24hours), dry, well-ventilated area, segregated from incompatible chemicals. Storage conditions should comply with the requirements established by the National Fire Protection Association's NFPA 1 – Uniform Fire Code and/or NFPA 400 – Hazardous Materials Code and/or the International Code Council's (ICC) International Fire Code. Since both NFPA and ICC codes are used throughout the U.S., consult with local fire departments to determine which codes apply.

Incompatible Substances: ACLs are highly reactive oxidizing and chlorinating agents. Precautions should be taken to prevent the mixing of these products with other incompatible chemicals during storage, handling and manufacture. Some chemicals incompatible with ACLs include (but are not limited to): Strong acids or bases; Amino Compounds (amines; amides; ammonia, and ammonium salts) and hydrazines; Acetic acid and acetic anhydride; Alcohols (methyl, ethyl, isopropyl, etc.) and phenols; Alkenes and acetylene; Biuret; Calcium hypochlorite; Ethers; Fungicides; Glycerin; Mineral reducing agents (sulfides, bisulfites, thiosulfates, nitrites, cyanide salts, etc.); Oils and paints; Organic or mineral oxidizers (peroxides, perborates, percarbonates); Petroleum products (gasoline, kerosene, etc.); Urea. Substances not listed must be evaluated for compatibility prior to use

Packaging materials ACL products have excellent stability when they are properly packaged and stored; however, these materials can form enough chlorine-containing gases to cause deterioration of the container. Therefore, the standard shelf-life for packaged product (in bulk bags, plastic drums or pails) is two years. The one exception is for product in cardboard cases where the shelf-life is six months. These guidelines are based on potential deterioration of packaging and not on degradation of product.

7.3 Specific end use(s)

Specific Product Use(s): This product should only be used for applications described in Section 1.2.

7.4 Additional information

GHS - Physical Hazard Statement(s)

H272 - May intensify fire; oxidizer

Physical Hazards Not Otherwise Classified

- Damp or wet material may generate nitrogen trichloride, an explosion hazard
 - Heating over 115 °C (239 °F) may initiate a self-sustaining decomposition which releases large amounts of heat and gas including toxic fumes
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8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Regulatory Exposure Limit(s): No occupational exposure limits have been established at this time.

Derived No Effects Level (DNEL): Workers

Acute Exposures: Systemic Effects - N/A - the substance is corrosive. Risk mitigation measures (RMM) apply to prevent exposure.

Acute Exposures: Dermal - N/A - the substance is corrosive. Risk mitigation measures (RMM) apply to prevent exposure.

ACL® 60 Chlorinating Composition

SDS No.: M31034

Rev. Date: 11/05/2020

Supersedes Date (EU): February-2018-01

Acute Exposures: Inhalation - N/A - the substance is corrosive. Risk mitigation measures (RMM) apply to prevent exposure.

Long-Term Exposure (Systemic Effects) : Dermal - 2.3 mg/kg bw/day.

Long-Term Exposure (Systemic Effects): Inhalation - 8.11 mg/m³

Derived No Effects Level (DNEL): Population

Acute Exposure: Systemic Effects - Dermal and Inhalation: N/A - the substance is corrosive. Oral: the acute oral DNEL is covered by the long term oral DNEL.

Acute Exposure: Dermal - The acute dermal DNEL for local effects is not determined as the test material is corrosive on skin contact.

Acute Exposure: Inhalation - The acute inhalation DNEL for local effects is not determined as the test material is corrosive.

Long-Term Exposure (Systemic Effects): Dermal - 1.15 mg/kg bw/day

Long-Term Exposure (Systemic Effects): Oral - 1.15 mg/kg bw/day

Long-Term Exposure (Systemic Effects): Inhalation - 1.99 mg/m³

Predicted No Effect Concentration (PNEC): Environment

PNEC: Aquatic - PNEC aqua (freshwater): 0.00017, 1.52, 0.00017 mg/L

PNEC aqua (marine water): 0.00017, 1.52, 0.00017 mg/L

PNEC aqua (intermittent releases): 0.00017, 1.52, 0.00017 mg/L

PNEC Soil - PNEC sediment (freshwater): 7.56, 0.756 mg/kg sediment dw PNEC soil: 7.56, 0.756 mg/kg soil dw

PNEC: Sewage Treatment Plant - PNEC STP: 0.59 mg/L

PNEC Mammals (oral) - There is no concern for secondary poisoning from the substance or the degradant

Non-Regulatory Exposure Limit(s):

This product does not contain any components that have advisory (non-regulatory) occupational exposure limits (OELs); however, the manufacturer has established recommended exposure levels (RELs) as noted below.

Non-Regulatory Exposure Limit(s):

This product does not contain any components that have advisory (non-regulatory) occupational exposure limits (OEL's). However, Occidental Chemical Corporation has tentatively established a Manufacturer Recommended Exposure Limit for a similar compound, Trichloroisocyanuric Acid, of 0.5 mg/m³ for an 8-hour time weighted average (TWA). Contact manufacturer for further information addressing appropriate exposure monitoring / sampling methods. Recommended Exposure Limits (REL's) are non-regulatory occupational exposure limits that the manufacturer has established based on health effects data.

Component	OXY REL 8 hr TWA	OXY REL STEL	OXY REL Ceiling
Dichloroisocyanuric acid, sodium salt 2893-78-9 (96 - 98)	0.5 mg/m ³ (8-hr TWA)		

Additional Advice: Chlorine and chlorine compounds may be found in slight amounts in the head space of containers of this product.

8.2 Exposure controls**RISK MANAGEMENT MEASURES (RMM):****RMM: HEALTH**

The use of a half-face respirator with chlorine cartridges (EN140) is required during opening of drums and filling of containers. An IOEL of 1.5 mg/m³ chlorine is applicable. The substance is corrosive so risk mitigation measures (wearing PPE consisting of gloves (nitrile), coverall and safety glasses) while handling the raw material and where exposure may be possible, would apply. Local exhaust ventilation should be used where opening of drums and filling of containers occurs.

ACL® 60 Chlorinating Composition

SDS No.: M31034

Rev. Date: 11/05/2020

Supersedes Date (EU): February-2018-01

RMM: ENVIRONMENT

Engineering controls should be used to eliminate emissions of dust and chlorinated fumes as appropriate. All gas emissions should be filtered for dust and treated with sodium hydroxide to remove chlorine and other volatile chlorinated species. Dry solid residues from air filtration systems are collected and either recycled or disposed of. The waste dust from formulation or tableting is sent to an external waste treatment site for disposal.

ENGINEERING CONTROLS: Use only in well-ventilated areas. Provide local exhaust ventilation where dust or mist may be generated. Conventional mixer types can be used for the formulation of these products but should be designed or modified to minimize attrition, dusting or spilling. Provision should be made to collect any dust from the mixer in a suitable dust-collecting system. Note, the dust collection system for ACL products should not be used to collect dust from materials that will react with ACL products. All equipment should be thoroughly cleaned before and after mixing to prevent the possibility of undesired reactions or fire as a result of accidental contamination. Ensure compliance with applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: Wear safety glasses with side-shields. Wear chemical safety goggles with a face shield to protect against eye and skin contact when appropriate. Provide an emergency eyewash fountain and quick drench shower in the immediate work area.

Skin and Body Protection: Wear protective clothing to minimize skin contact. When potential for contact with dry material exists, wear disposable coveralls suitable for dust exposure, such as Tyvek®. Contaminated clothing should be removed and laundered before reuse.

Hand Protection: Wear appropriate chemical resistant gloves. Consult a glove manufacturer for assistance in selecting an appropriate chemical resistant glove.

Protective Material Types: Butyl rubber, Natural rubber, Neoprene, Nitrile, Polyvinyl chloride (PVC), Tyvek®

Respiratory Protection: An approved respirator with EN140 (chlorine) cartridges may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits, or when symptoms have been observed that are indicative of overexposure. The added protection of a full face-piece respirator is required when visible dusty conditions are encountered and eye irritation may occur. A respiratory protection program that meets applicable regulatory requirements must be followed whenever workplace conditions warrant use of a respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES**9.1 Information on basic physical and chemical properties**

Physical state	Solid, Crystals, Granules
Appearance:	Crystals, Granules
Color:	White
Odor:	Slight chlorine odor
Odor Threshold [ppm]:	Not Available
Molecular Weight:	220
Molecular Formula:	C3N3O3Cl2Na
Boiling Point/Range:	Not applicable
Freezing Point/Range:	Not applicable

ACL® 60 Chlorinating Composition

SDS No.: M31034

Rev. Date: 11/05/2020

Supersedes Date (EU): February-2018-01

Melting Point/Range:	Decomposes without melting
Decomposition Temperature:	Decomposes above 210 °C
Vapor Pressure:	<0.06 Pa @ 20 °C
Vapor Density (air=1):	Not applicable
Specific Gravity (water=1):	1.98 g/mL @ 25 °C
Density:	No data available
Bulk Density:	55 - 57 lbs/ft3 (loose)
Water Solubility:	24.3 g/100 g @ 25 °C
pH:	6 - 7 @ 25 °C (1% solution)
Evaporation Rate (ether=1):	Not applicable
Partition Coefficient (n-octanol/water):	Kow = 0
Flammability (solid, gas):	Not flammable
Flash point:	Not applicable
Lower Flammability Level (air):	Not flammable
Upper Flammability Level (air):	Not flammable
Autoignition Temperature:	Not determined
Viscosity:	Not applicable

9.2 Other information

Volatility: Not applicable

10. STABILITY AND REACTIVITY**10.1 Reactivity**

Not reactive under normal temperatures and pressures.

10.2 Chemical stability

Stable, not reactive under normal temperatures and pressures.

10.3 Possibility of hazardous reactions

Do not get water inside container. Wet material may generate nitrogen trichloride, an explosion hazard. Avoid contact with easily oxidizable organic material. Contact with acids liberates toxic gas.

- ACL in the presence of ammonia gas or aqueous solutions of ammonia will generate hazardous amounts of explosive nitrogen trichloride.
- Contamination with oils and greases may cause decomposition of ACL with formation of CO₂, Cl₂, and other toxic gases.
- Hydrogen peroxide may react violently with ACL with liberation of oxygen.

10.4 Conditions to Avoid

ACL materials in themselves are very stable to static discharge, shock or vibration. They do not present a dust explosion hazard. Wet material may generate nitrogen trichloride, an explosion hazard. Nitrogen trichloride (NCl₃) can appear as a yellow, oily liquid or vapor. Any quantity of NCl₃ is potentially explosive. Liquid NCl₃ will explode in contact with certain organic impurities, when melting after having been frozen, from impact or supersonic vibration, or on heating to 60°C or above. Vapor NCl₃ can be exploded or decomposed (to N₂ and Cl₂) when concentrations in air are as low as 0.3%. At this low concentration, however, the propagation rate is extremely slow, on the order of several

ACL® 60 Chlorinating Composition

SDS No.: M31034

Rev. Date: 11/05/2020

Supersedes Date (EU): February-2018-01

minutes per foot. At concentrations of 3-4%, the detonation is explosive with an instantaneous pressure rise. There are no good data on what temperature or conditions are required to explode the gas. It is known that NCl₃ vapor (or vapor-air mixture) can be exploded by a spark or by temperature in excess of 100°C.

10.5 Incompatible Materials

ACLs are highly reactive oxidizing and chlorinating agents. Precautions should be taken to prevent the mixing of these products with other incompatible chemicals during storage, handling and manufacture. Some chemicals incompatible with ACLs include (but are not limited to): Strong acids or bases; Amino Compounds (amines; amides; ammonia, and ammonium salts) and hydrazines; Acetic acid and acetic anhydride; Alcohols (methyl, ethyl, isopropyl, etc.) and phenols; Alkenes and acetylene; Biuret; Calcium hypochlorite; Ethers; Fungicides; Glycerin; Mineral reducing agents (sulfides, bisulfites, thiosulfates, nitrites, cyanide salts, etc.); Oils and paints; Organic or mineral oxidizers (peroxides, perborates, percarbonates); Petroleum products (gasoline, kerosene, etc.); Urea. Substances not listed must be evaluated for compatibility prior to use

10.6 Hazardous Decomposition Products

chlorine, nitrogen, nitrogen trichloride, cyanogen chloride, oxides of carbon, Phosgene

Hazardous Polymerization: Not expected to occur.

11. TOXICOLOGICAL INFORMATION**11.1 Information on Toxicological Effects**

Standard Draize (Eye): PRIMARY EYE IRRITATION: Severe Irritation, Corrosive (rabbit, 24 hr)

Standard Draize (Skin): PRIMARY SKIN IRRITATION: Severe Irritation, Corrosive (rabbit, 24 hr)

TOXICITY DATA:**PRODUCT TOXICITY DATA:**

The test material for the LC50 inhalation 4 hr. Rat resulting in 0.6 mg/L was TowerBrom 60 (~ 90% Dichloroisocyanurate); all other results were from Dichloroisocyanurate.

LD50 Oral: 1823 mg/kg (Rat)	LD50 Dermal: >2000 mg/kg (Rabbit)	LC50 Inhalation: 0.27 - 1.17 mg/L (4 hr - Rat) 0.6 mg/L (4 hr - Rat)
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POTENTIAL HEALTH EFFECTS:**Inhalation:**

This material in the form as sold is NOT expected to produce respiratory effects. Particles of respirable size are generally not encountered. The respirable fraction is typically less than 0.1% by weight for the granular and extra granular grades. If ground or otherwise in a powdered form, effects similar to a corrosive substance may occur. Exposure to the solid product or to free chlorine evolving from the product may cause irritation, redness of upper and lower airways, coughing, laryngospasm and edema, shortness of breath, bronchoconstriction, and possible pulmonary edema. The pulmonary edema may develop several hours after a severe acute exposure.

Skin contact:

ACL® 60 Chlorinating Composition

SDS No.: M31034

Rev. Date: 11/05/2020

Supersedes Date (EU): February-2018-01

Exposure to solid along with moisture may cause redness, irritation, burning sensation, swelling, blister formation, first, second, or third degree burns. Dry material is less irritating than wet material. This material is not a skin sensitizer based on studies with guinea pigs.

Eye contact:

Eye exposures may cause burns to the eye lids, conjunctivitis, corneal edema, and corneal burn. Significant and prolonged contact may cause damage to the internal eye structures.

Ingestion:

Exposure by ingestion may cause irritation, nausea, and vomiting. May cause local tissue damage to epiglottis, mucus membranes of the mouth, esophagus and stomach such as burning, inflammation, local ulceration, and may cause gastrointestinal bleeding.

Chronic Effects:

None identified for the parent chemical. Based on animal studies, exposure to concentrations of monosodium cyanurate at the solubility limit may cause cardiovascular, kidney and urinary bladder effects.

SIGNS AND SYMPTOMS OF EXPOSURE:

Inhalation (Breathing):

Respiratory System Effects. Exposure to the solid product or to free chlorine evolving from the product may cause irritation, redness of upper and lower airways, coughing, laryngospasm and edema, shortness of breath, bronchoconstriction, and possible pulmonary edema. The pulmonary edema may develop several hours after a severe acute exposure. Please refer to Section 11 for additional information.

Skin:

Skin Corrosion. Exposure to solid along with moisture may cause redness, irritation, burning sensation, swelling, blister formation, first, second, or third degree burns.

Eye:

Serious Eye Damage. Exposure to eyes may cause irritation and burns to the eye-lids, conjunctivitis, corneal edema, and corneal burn. Significant and prolonged contact may cause damage to internal eye structures.

Ingestion (Swallowing):

Gastrointestinal Effects. Exposure by ingestion may cause irritation, nausea, and vomiting. May cause local tissue damage to esophagus and stomach such as burning, inflammation, local ulceration, and may cause gastrointestinal bleeding.

TOXICITY:

Monosodium cyanurate was administered via drinking water to rats for 104 weeks at concentrations of 0, 400, 1200, 2400, and 5375 ppm (solubility limit). No compound-related effects on body weights, clinical signs of toxicity or food or water consumption were noted during the study. An increased incidence of gross lesions in the urinary tract, calculi in the kidney and lesions in the heart were observed in males receiving the highest dose level of 5375 ppm (solubility limit). The health effects seen in this study were due to precipitation of the test substance in the urinary tract when the test substance was fed at the solubility limit. Adverse health effects were not seen at lower doses where precipitation did not occur.

Interaction with Other Chemicals Which Enhance Toxicity: Contact with acids liberates toxic gas

EU - GHS HEALTH HAZARDS:

GHS: CONTACT HAZARD - EYE:	Category 2 - Causes serious eye irritation
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ACL® 60 Chlorinating Composition

SDS No.: M31034

Rev. Date: 11/05/2020

Supersedes Date (EU): February-2018-01

GHS: ACUTE TOXICITY - ORAL:	Category 4 - Harmful if swallowed
GHS: TARGET ORGAN TOXICITY (SINGLE EXPOSURE):	Category 3 - May cause respiratory tract irritation
GHS: SUPPLEMENTAL HAZARD:	Contact with acids liberates toxic gas

NOTE: The EU GHS classification of this product is aligned with the European Classification, Labeling and Packaging (CLP) Regulation (EC) No. 1272/2008. The data/methods used for the CLP GHS classification may not reflect Occidental's self-classification of this product for other countries.

Hazards from Company's GHS Self-Classification Not Otherwise Mentioned

- TOXIC IF INHALED
- CAUSES SEVERE SKIN BURNS AND EYE DAMAGE

Eye Irritation/Corrosion: Corrosive to the eyes and may cause severe damage including blindness.

Skin Irritation/Corrosion: This product is classified as causing severe skin burns (Category 1, H314), according to GHS classification criteria.

Skin Absorbent / Dermal Route: NO

SPECIFIC TARGET ORGAN TOXICITY (Single Exposure): The substance is not classified as a specific target organ toxicant after single exposure per GHS criteria. See Acute Inhalation Toxicity below.

SPECIFIC TARGET ORGAN TOXICITY (Repeated or Prolonged Exposure): The substance is not classified as a specific target organ toxicant upon repeated exposure per GHS criteria.

INHALATION HAZARD: This product is classified as TOXIC IF INHALED (Category 3) per GHS criteria. Size of actual cut typically ranges 250 - 2000 microns with <0.3% less than 100 microns and <0.06% less than 10 microns (limit of respirable particles).

CARCINOGENICITY: This product is not classified as a carcinogen by NTP, IARC or OSHA.

IN-VITRO / IN-VIVO GENOTOXICITY: Not classified as a mutagen per GHS criteria. Not mutagenic in 5 Salmonella strains and 1 E. coli strain with or without mammalian microsomal activation.

REPRODUCTIVE TOXICITY: Not classified as a reproductive toxin per GHS criteria. There are no known or recorded effects on reproductive function or fetal development.

METABOLISM: Not available.

NEUROTOXICITY: Not Available.

IMMUNOTOXICITY: Not available.

PATHOGENICITY AND ACUTE INFECTIOUSNESS (ORAL, DERMAL, AND INHALATION): Not applicable.

Hazard Not Otherwise Classified (HNOC)-Health

- Contact with acids liberates toxic gas
- Damp or wet material may generate hazardous and toxic gases
- Contact with water slowly liberates irritating and hazardous chlorine containing gases
- Heating over 115 °C (239 °F) may initiate a self-sustaining decomposition which releases large amounts of heat and gas including toxic fumes
- Decomposes at temperatures above 210 °C (410 °F) with liberation of harmful gases

ACL® 60 Chlorinating Composition

SDS No.: M31034
Supersedes Date (EU): February-2018-01

Rev. Date: 11/05/2020

12. ECOLOGICAL INFORMATION

12.1 Toxicity**ECOTOXICITY DATA:****Fish Toxicity:**

LC50 Bluegill sunfish: 0.25-1.0 mg/L (96 hour)
LC50 Rainbow trout: 0.13-0.36 mg/L (96 hour)
LC50 Inland silversides: 1.21 mg/L (96 hour)

Invertebrate Toxicity:

LC50 Water flea: 0.196 mg/L (48 hour)
LC50 Mysid shrimp: 1.65 mg/L (96 hour)

Other Toxicity:

LD50 Mallard duck (oral): 1,916 mg/kg
LD50 N. Bobwhite Quail (oral): No Data
LC50 Mallard duck (diet): >10,000 ppm
LC50 N. Bobwhite Quail (diet): >10,000 ppm

12.2 Persistence and degradability**FATE AND TRANSPORT:**

PERSISTENCE: This material is believed not to persist in the environment. Free available chlorine is rapidly consumed by reaction with organic and inorganic materials to produce chloride ion. The stable degradation products are chloride ion and cyanuric acid.

BIODEGRADATION: Chlorinated isocyanurates react with water to form hypochlorous acid and isocyanuric acid. Hypochlorous acid is rapidly destroyed by natural substances present in the water or environment (on the scale of minutes or hours). Isocyanuric acid biodegrades very slowly under aerobic conditions unless; 1) specific fungi or bacteria strains are present, 2) the microorganisms have been acclimated to isocyanuric acid, and 3) organic nutrients are present for the microorganisms.

12.3 Bioaccumulative potential

BIOACCUMULATIVE POTENTIAL: No bioaccumulation data is available for isocyanuric acid in fish or aquatic organisms, but it is not expected to bioaccumulate due to its low octanol-water partition coefficient (0.67). Isocyanuric acid is eliminated unchanged from the bodies of rats, dogs, and humans.

BIOCONCENTRATION: This material hydrolyses in water liberating free available chlorine and cyanuric acid. These products are not bioaccumulative.

12.4 Mobility in soil

The soil partition coefficient is a measure of a compound's tendency to partition to soils and sediments. Isocyanuric acid should be considered highly mobile and not strongly absorbed onto soil.

12.5 Result of PBT and vPvB assessment

ACL® 60 Chlorinating Composition

SDS No.: M31034

Rev. Date: 11/05/2020

Supersedes Date (EU): February-2018-01

PBT and vPvB assessment: This product does not fulfill the criteria for persistence, bioaccumulation, and toxicity. Therefore, this substance is not considered a PBT or a vPvB substance.

12.6 Other adverse effects

ADDITIONAL ECOLOGICAL INFORMATION:

This product is very toxic to fish and aquatic organisms. This product is very toxic to aquatic life with long lasting effects. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of appropriate regulatory requirements (e.g. permit and the permitting authority has been notified in writing prior to discharge). Do not discharge effluent containing this product into sewer systems without previously notifying the sewage treatment plant authority. For guidance, contact your local or regional regulatory water boards and/or other appropriate regulatory offices.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste from material:

Use or reuse if possible. This material is a registered pesticide. May be subject to disposal regulations. Dispose in accordance with all applicable regulations. Do not put product, spilled product, or filled or partially filled containers into the trash or waste compactor. DO NOT transport wet or damp material. Damp material should be neutralized to a non-oxidizing state. Contact OxyChem for instructions for handling and disposal of damp material. Wastes of this pesticide may cause irreversible eye damage and burns to skin and may be dangerous. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA regional office for guidance.

Container Management:

See product label for container disposal information. Dispose of container in accordance with applicable local, regional, national, and/or international regulations. Container rinsate must be disposed of in compliance with applicable regulations.

14. TRANSPORT INFORMATION

LAND TRANSPORT

U.S. DOT 49 CFR 172.101:

Status:	Regulated: Non-bulk packages by ground and air shipments are regulated as oxidizers. Bulk packaging or shipments by vessel are regulated as follows:
UN NUMBER:	UN2465
PROPER SHIPPING NAME:	Dichloroisocyanuric Acid Salts Marine Pollutant (Sodium dichloroisocyanurate)
HAZARD CLASS/ DIVISION:	5.1
PACKING GROUP:	II

ACL® 60 Chlorinating Composition

SDS No.: M31034

Rev. Date: 11/05/2020

Supersedes Date (EU): February-2018-01

LABELING REQUIREMENTS: 5.1, Marine Pollutant
MARINE POLLUTANT: Sodium dichloroisocyanurate

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

Status: Regulated: Non-bulk packages by ground and air shipments are regulated as oxidizers. Bulk packaging or shipments by vessel are regulated as follows:

UN NUMBER: UN2465
SHIPPING NAME: Dichloroisocyanuric acid salts, Marine Pollutant, (Sodium dichloroisocyanurate)
CLASS OR DIVISION: 5.1
PACKING/RISK GROUP: II
LABELING REQUIREMENTS: 5.1, Marine Pollutant
CAN. MARINE POLLUTANT: Sodium dichloroisocyanurate

LAND TRANSPORT RID:

Status - RID: Non-Bulk Packaging: Not Regulated unless transported by Vessel
 Bulk Packaging or Shipment by Vessel: Regulated

UN Number: UN2465
Proper shipping name: Dichloroisocyanuric Acid Salts, Marine Pollutant, (Sodium dichloroisocyanurate)
Hazard Class: 5.1
Packing Group: II
Classification code: O2

LAND TRANSPORT ADR:

Status - ADR: Non-Bulk Packaging: Not Regulated unless transported by Vessel
 Bulk Packaging or Shipment by Vessel: Regulated

UN Number: UN2465
Proper shipping name: Dichloroisocyanuric Acid Salts, Marine Pollutant, (Sodium dichloroisocyanurate)
ADR - Hazards Class: 9
Packing group: II
Classification Code: O2

MARITIME TRANSPORT IMO / IMDG:

Status - IMO / IMDG: Shipment by Vessel: Regulated
UN NUMBER: UN2465
PROPER SHIPPING NAME: Dichloroisocyanuric acid, salts, Marine Pollutant, (Sodium dichloroisocyanurate)
HAZARD CLASS/ DIVISION: 5.1
Packing Group: II
LABELING REQUIREMENTS: 5.1, Marine Pollutant

MARINE POLLUTANT: Sodium dichloroisocyanurate

AIR TRANSPORT (ICAO / IATA)

Special Instructions CAO: IATA Certificate for shipping personnel is required

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

• Occidental Chemical Belgium BVBA (Acting for Occidental Chemical Corporation (United States)) is listed on the Article 95 list for product types: 2,3,4,5,11

ACL® 60 Chlorinating Composition

SDS No.: M31034

Rev. Date: 11/05/2020

Supersedes Date (EU): February-2018-01

- EU - Biocides (1062/2014) - Annex II Part 1 - Supported Substances [Product Type: 2,3,4,5,11,12]
- EU - Biocides (1451/2007) - Existing Active Substances
- EU - Biocides (2007/565/EC) - Substances and Product-Types Not to Be Included in Annexes I, IA and IB to Directive 98/8/EC: Product type: 9

15.2 NATIONAL REGULATORY STATUS:**Germany, Water Endangering Classes (VwVwS):**

Component	German - Water Hazard Classes	German - Water Hazard Class Annex 1	German - Water Hazard Class Annex 3
Dichloroisocyanuric acid, sodium salt 2893-78-9			ID Number 7323, hazard class 2 - hazard to waters
Sodium Chloride 7647-14-5	270		

International Inventory Status:**Australian Chemical Inventory:**

Component	AICS	Australia - Standard for the Uniform Scheduling of Drugs and Poisons
Dichloroisocyanuric acid, sodium salt 2893-78-9	Present	
Sodium Chloride 7647-14-5	Listed	

Canadian Chemical Inventory:

Component	DSL	NDSL
Dichloroisocyanuric acid, sodium salt 2893-78-9	Listed	
Sodium Chloride 7647-14-5	Listed	

China Chemical Inventory:

Component	IECS
Dichloroisocyanuric acid, sodium salt 2893-78-9	v 09864
Sodium Chloride 7647-14-5	v 24102

European Union Inventory:

Component	EU - NLPL	ELINCS	EU: EINECS Nr.
Dichloroisocyanuric acid, sodium salt 2893-78-9			220-767-7
Sodium Chloride 7647-14-5			231-598-3

Japan Chemical Inventory:

Component	ENCS
Dichloroisocyanuric acid, sodium salt	(5)-1043

ACL® 60 Chlorinating Composition

SDS No.: M31034

Rev. Date: 11/05/2020

Supersedes Date (EU): February-2018-01

2893-78-9	
Sodium Chloride 7647-14-5	(1)-236

Korean Chemical Inventory:

Component	KECL
Dichloroisocyanuric acid, sodium salt 2893-78-9	KE-10215
Sodium Chloride 7647-14-5	KE-31387

Mexico - National Inventory of Chemical Substances (INSQ)

Component	Mexico - National Inventory of Chemical Substances (INSQ)
Dichloroisocyanuric acid, sodium salt 2893-78-9	Present
Sodium Chloride 7647-14-5	Present

New Zealand Chemical Inventory:

Component	NZIOC
Dichloroisocyanuric acid, sodium salt 2893-78-9	Listed
Sodium Chloride 7647-14-5	Listed

Philippines - Priority Chemical List:

Component	PICCS
Dichloroisocyanuric acid, sodium salt 2893-78-9	Present
Sodium Chloride 7647-14-5	Present

Taiwan - Taiwan Chemical Substance Inventory (TCSI)

Component	Taiwan - Taiwan Chemical Substance Inventory (TCSI)
Dichloroisocyanuric acid, sodium salt	Present
Sodium Chloride	Present

Thailand - FDA Existing Chemicals Inventory (TECI)

Component	Thailand - FDA Existing Chemicals Inventory (TECI)
Dichloroisocyanuric acid, sodium salt 2893-78-9	55-1-03105
Sodium Chloride 7647-14-5	55-1-05942

U.S. INVENTORY STATUS: Toxic Substance Control Act (TSCA):

Component	TSCA	TSCA ACTIVE LIST	TSCA 12(b)	TSCA - Section 5
Dichloroisocyanuric acid, sodium salt 2893-78-9	Listed	ACTIVE		

ACL® 60 Chlorinating Composition

SDS No.: M31034

Rev. Date: 11/05/2020

Supersedes Date (EU): February-2018-01

Sodium Chloride 7647-14-5	Listed	ACTIVE		
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Vietnam - National Chemicals Inventory (NCI) (DRAFT)

Component	Vietnam - National Chemicals Inventory (NCI) (DRAFT)
Dichloroisocyanuric acid, sodium salt	Present 08491
Sodium Chloride	Present 11425

15.3 Chemical Safety Assessment

- A Chemical Safety Report (CSR) has been carried out as required under Title VII
- The Exposure Scenario(s) attached to the SDS are an abridged version for ease of reading
- There are no known current restrictions under Title VIII

16. OTHER INFORMATION**16.1 Further Information**

Prepared by: OxyChem Corporate HESS - Product Stewardship

Turkey Certified Authorer: This SDS has been prepared by persons qualified to author and translate this document.

Email of competent person responsible for SDS: SDS_Tech@oxy.com

SDS Revision Date: 11/05/2020

16.2 Relevant H-statements**GHS - Physical Hazard Statement(s)**

H272 - May intensify fire; oxidizer

GHS - Health Hazard Statement(s)

H302 - Harmful if swallowed

H319 - Causes serious eye irritation

H335 - May cause respiratory irritation

GHS - Environmental Hazard Statement(s)

H410 - Very toxic to aquatic life with long lasting effects

Supplemental Hazard Statement

EUH031- Contact with acids liberates toxic gas

16.3 Indication of changes**Reason for Revision (EU):**

- Change of company physical address: SEE SECTION 1
- Included additional information for other usage that may be restricted and/or prohibited: SEE SECTION 1
- Added Hazards Not Otherwise Classified (HNOC): SEE SECTION 2
- Added Health Hazards Not Otherwise Classified: Section 2 and 11

ACL® 60 Chlorinating Composition

SDS No.: M31034

Rev. Date: 11/05/2020

Supersedes Date (EU): February-2018-01

- Modified Fire Fighting Measure Recommendations: SEE SECTION 5
- Updated First Aid Measures: SEE SECTION 4
- Added Physical Hazards Not Otherwise Classified to format: SEE SECTIONS 5&7
- Revised Accidental Release Measures: SEE SECTION 6
- Revised Handling and Storage Recommendations: SEE SECTION 7
- Modified Exposure Limit information: SEE SECTION 8
- Additional information on dust collection systems added: SEE SECTION 8
- Updated Physical and Chemical Properties. SEE SECTION 9
- Stability and Reactivity recommendations: SEE SECTION 10
- SDS format change / enhancement to Section 11: Toxicological Information
- Toxicological Information has been revised: SEE SECTION 11
- Ecological Information has been modified: SEE SECTION 12
- Updated Disposal Considerations. SEE SECTION 13
- Added air transport certificate requirements for shipping personnel: SEE SECTION 14

16.4 Additional information

IMPORTANT:

The information presented herein, while not guaranteed, was prepared by technical personnel and is true and accurate to the best of our knowledge. NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, OR WARRANTY OR GUARANTY OF ANY OTHER KIND, EXPRESSED OR IMPLIED, IS MADE REGARDING PERFORMANCE, SAFETY, SUITABILITY, STABILITY OR OTHERWISE. This information is not intended to be all-inclusive as to the manner and conditions of use, handling, storage, disposal and other factors that may involve other or additional legal, environmental, safety or performance considerations, and Occidental Chemical Corporation assumes no liability whatsoever for the use of or reliance upon this information. While our technical personnel will be happy to respond to questions, safe handling and use of the product remains the responsibility of the customer. No suggestions for use are intended as, and nothing herein shall be construed as, a recommendation to infringe any existing patents or to violate any federal, state, local or foreign laws.

OSHA Statement

OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, safety data sheets, training and access to written records. We request that you, and it is your legal duty to, make all information in this Safety Data Sheet available to your employees.

End of Safety Data Sheet

EXPOSURE SCENARIO ANNEX TO SDS

M31034-ES1 - ES - BE



TROCLOSENE SODIUM (ACL® 60) - ES 1

ES #: M31034-ES1

Revision Date: 2020-24 -August

ANNEX - EXPOSURE SCENARIO

EXPOSURE SCENARIO NAME:	TROCLOSENE SODIUM (ACL® 60) - ES 1
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EXPOSURE SCENARIOS:

- ES1: Formulation of products
- ES2: Textile treatment
- ES3: Use of cleaning products
- ES4: Use of general products (surface treatments and adhesives)
- ES5: Industrial manufacture of articles
- ES6: Biocidal Products

1. Short title of Exposure Scenario: Formulation of Products

2. Description of Activities/Process(es) covered by Exposure Scenario

Sector of Use (SU): SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

Product Category (PC):

- PC1 - Adhesives, sealants
- PC20 - pH-regulators, flocculants, precipitants, neutralization agents
- PC21 - Laboratory chemicals
- PC23 - Leather tanning, dye, finishing, impregnation and care products
- PC34 - Textile dyes, finishing and impregnating products
- PC35 - Washing and cleaning products

Process Category (PROC):

- PROC 1 - Use in closed process, no likelihood of exposure
- PROC 2 - Use in closed, continuous process with occasional controlled exposure
- PROC 3 - Use in closed batch process (synthesis or formulation)
- PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises
- PROC 5 - Mixing or blending in batch process for formulation of preparations and articles (multistage and/or significant contact)
- PROC 8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
- PROC 8b - Transfer of substance or preparation (charging/discharging) from or to vessels/large containers at dedicated facilities

TROCLOSENE SODIUM (ACL® 60) - ES 1

SDS No.: M31034-ES1

Rev. Date: 11/05/2020

PROC 9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelettisation
PROC 15 - Use a laboratory reagent

Article Category (AC): Not applicable

Environmental Release Category (ERC): ERC2 - Formulation of preparations

OPERATIONAL CONDITIONS OF USE

3. Application Conditions:

This exposure scenario covers the industrial uses of troclosen sodium. Formulation activities and processes covered in this exposure scenario include, but are not limited to: manufacture of the substance, dry formulation and repackaging, drum emptying, packaging, and indirect exposures to workers.

3.1 Duration and frequency of use:

Duration and frequency varies from activity to activity. The maximum duration considered for this exposure scenario is a full working shift (8 hr/day) and 220 days/year. Manufacture of substance: For an average continuous manufacturing process, the cycle from raw materials to finished product will take approximately 5 hours, with 1000 kg of product processed per hour. Production takes place all year round (220 days). Dry formulation and repackaging: The maximum duration considered for this exposure scenario is a full working shift (8 hr/day) and 220 days/year. Drum emptying: Exposure time per batch = 2 minutes; Number of exposures per 8 hour work shift = 8 - 16. Packaging: Total exposure time per 8 hour work shift = 6-7 hours. Indirect exposure: Total exposure time per work shift = 2 hours at levels below occupational exposure limits.

4.1 Physical form of substance or preparation:

Solid: Granulated. Solid: Tablets.

4.2 Product Specification (Concentration of substance in preparation or article):

- Depending on the formulation activity or process, the product concentration can range from 3 - 100%. This will be in a solid form, either granular or tablets
- Manufacture of the substance: 96 - 100%
- Dry formulation and repackaging: 96 - 100%
- Drum emptying: 96 - 100%
- Packaging: 3 - 25% formulation, or 96 - 100% formulation when repacking
- Indirect exposure: 3 - 25% formulation, or 96 - 100% formulation when repacking

4.3 Maximum amount per time or activity:

The amount used per worker varies from activity to activity. For an average continuous manufacturing process the cycle from raw materials to finished product will take approximately 5 hours, with 1000 kg processed per hour. The tableting batch size is 1000 kg, taking 1 hour, with approximately 17 batches processed per day.

5. Other relevant operational conditions of use:

- Assumes a good basic standard of occupational hygiene has been implemented
- Local exhaust ventilation / forced-air systems are used during the tableting process to reduce potential for personnel exposure
- Workers routinely wear personal protective equipment (PPE) during the tablet process consisting of safety goggles, chemical resistant gloves, coverall, and respiratory protective equipment (RPE) of a half-face respirator with chlorine filter (EN140). RPE is not typically worn where local exhaust ventilation is in use

RISK MANAGEMENT MEASURES RELATED TO HUMAN HEALTH

6.1 Risk Management Measures Related to Human Health

Risk Management Measures Targeted to Workers (Industrial):

- This material is corrosive; therefore, risk management measures for human health should focus on the prevention of direct contact with the substance
- This includes but is not limited to wearing PPE consisting of chemical resistant gloves, chemical resistant coveralls, and safety glasses

Engineering Controls (workers):

- Local exhaust ventilation should be used in areas where opening of drums and filling of containers occurs
- The substance should be produced in a continuous contained process, where the air emissions are treated to avoid emissions of the substance or other chlorine containing materials
- Forced air systems are used during the tableting process to ensure a clean air supply
- All gas emissions should be filtered for dust and treated with sodium hydroxide to remove chlorine and other volatile chlorinated species
- Dry solid residues from air filtration systems should be collected and recycled back into the process

Personal Protective Equipment (PPE), normal working conditions (workers):

- Hand and Eye Protection: the substance is corrosive, therefore, safety goggles and chemical resistant gloves (Butyl rubber, Natural rubber, Neoprene, Nitrile, Polyvinyl chloride (PVC)) should be worn where exposure may be possible (e.g. handling the raw material during opening of drums and filling of containers)
- Respiratory Protection: Half-face respirator with chlorine cartridges (EN140) is required during opening of drums and filling of containers
- Respiratory Protection: Full-face autonomous respirators with supplied air are made available if required during certain activities such as but not limited to maintenance and cleaning. The added protection of a full face piece respirator is required when visible dusty conditions are encountered and eye irritation may occur
- Body Protection: Tyvek type disposable coveralls or dedicated work coveralls supplied and laundered by the employer can be worn when opening or filling drums of dry material
- Body Protection: Acid resistant coveralls should be worn during maintenance and cleaning activities
- Assumes PPE is well maintained and checked regularly
- Respiratory Protective Equipment (RPE) is not used in conjunction with the forced-air supply

Other Risk Management Measures (workers):

Assumes a good basic standard of occupational hygiene is implemented. Workers in the higher exposure jobs/ areas should be identified and trained in the specific hazards and proper methods to protect themselves from the risks. Employer must ascertain that the required PPE is available and used according to instructions. An IOEL of 1.5 mg/m³ chlorine is applicable.

RISK MANAGEMENT MEASURES RELATED TO THE ENVIRONMENT

6.2 Risk Management Measures Targeted to Protect the Environment

Environmental Release Category (ERC):

ERC2 - Formulation of preparations

TROCLOSENE SODIUM (ACL® 60) - ES 1

SDS No.: M31034-ES1

Rev. Date: 11/05/2020

Risk Management Measures Targeted to Protect the Environment:

The substance hydrolyses to cyanuric acid and HOCl in aqueous solution. The substance is converted to the hydrolysis products in waste water streams or removed from air emissions and recycled back into the production system. Risk Mitigation Measures (RMM) are in place to prevent release of volatile chlorine species to the environment. As there is no release of the substance to the environment from manufacture and formulation no exposure assessment for the environment was conducted.

WASTE MANAGEMENT MEASURES**7. Waste Management Measures****Waste Related Measures: Air**

Material is of low volatility. During the use of the substance dust and chlorinated fumes can be generated. All gas emissions should be filtered for dust and treated with sodium hydroxide to remove chlorine and other volatile chlorinated species. Dry solid residues from air filtration systems should be collected and recycled back into the process.

Waste Related Measures: Water

Any aqueous waste from the manufacturing process should be filtered to remove solids, which should be recycled back into the process. Waste water should also treated to remove any available chlorine species before release to a waste-water treatment plant. Solid wastes from the process should be sent to an external waste treatment site for disposal.

INFORMATION ON ESTIMATED EXPOSURE**8.1 Exposure Estimations for Human Health**

TIER: Tier 1

Dermal Exposure Estimate (local effects):	Not applicable (N/A)
Activities/Process(es) covered by Dermal Exposure Estimate:	PROC 1, PROC 2, PROC 3, PROC 4, PROC 5, PROC 8a, PROC 8b, PROC 9, PROC 14, PROC 15
Justification For Estimate of Dermal Exposure (local effects):	Test material is corrosive; risk mitigation measures should be in place to prevent exposure.
Dermal Exposure Estimate (systemic effects):	13.71 mg/kg bw/d
Activities/Process(es) covered by Dermal Exposure Estimate:	PROC 1, PROC 2, PROC 3, PROC 4, PROC 5, PROC 8a, PROC 8b, PROC 9, PROC 14, PROC 15
Justification for Estimate of Dermal Exposure (systemic effects):	All applicable process categories (PROC) were evaluated. PROC 5: Mixing or blending in batch processes (multistage and/or significant contact) - highest dermal exposure value derived by Ecetoc TRA worker tool when no risk mitigation measures are applied.
Activities/Process(es) covered by Dermal Exposure Estimate:	PROC 1, PROC 2, PROC 3, PROC 4, PROC 5, PROC 8a, PROC 8b, PROC 9, PROC 14, PROC 15
Activities/Process(es) covered by Dermal Exposure Estimate:	PROC 1, PROC 2, PROC 3, PROC 4, PROC 5, PROC 8a, PROC 8b, PROC 9, PROC 14, PROC 15
Inhalation Exposure Estimate:	0.5 mg/m ³
Activities/Process(es) covered by Inhalation Exposure Estimate:	

TROCLOSENE SODIUM (ACL® 60) - ES 1

SDS No.: M31034-ES1

Rev. Date: 11/05/2020

- PROC 1
- PROC 2
- PROC 3
- PROC 4
- PROC 5
- PROC 8a
- PROC 8b
- PROC 9
- PROC 14
- PROC 15

Justification for Estimate of Inhalation Exposure:

All applicable process categories (PROC) were evaluated. PROC 5: Mixing or blending in batch processes (multistage and/or significant contact) - highest dermal exposure value derived by Ectoc TRA worker tool when no risk mitigation measures are applied.

TIER: Tier 2 - Values used for risk characterization calculations

Dermal Exposure Estimate (local effects):	Not applicable
Justification For Estimate of Dermal Exposure (local effects): Test material is corrosive, risk mitigation measures should be in place to prevent exposure.	

Dermal Exposure Estimate (systemic effects):	1.371 mg/kg bw/d
Justification for Estimate of Dermal Exposure (systemic effects): All applicable process categories (PROC) were evaluated. PROC 5: Mixing or blending in batch processes (multistage and/or significant contact) - highest dermal exposure value derived by Ectoc TRA worker tool when no risk mitigation measures are applied.	

Inhalation Exposure Estimate:	0.145 mg/m³
Justification for Estimate of Inhalation Exposure: All applicable process categories (PROC) were evaluated. PROC 5: Mixing or blending in batch processes (multistage and/or significant contact) - highest inhalation exposure value derived by Ectoc TRA worker tool when no risk mitigation measures are applied.	

9.5 EXPOSURE ESTIMATION FOR CONSUMERS

Not applicable to this exposure scenario.

INDIRECT EXPOSURE OF HUMANS VIA THE ENVIRONMENT

There will be no indirect exposure to humans via the environment from this exposure scenario.

8.2 Exposure Estimations for Environment**EXPOSURE ESTIMATION FOR ENVIRONMENT**

Exposure concentrations were not calculated for sediments, soil, groundwater, surface water, air, and waste water treatment plants because those compartments are not considered relevant for this exposure scenario. There is no environmental release of the substance. The substance hydrolyzes to HOCl and cyanuric acid.

GUIDANCE TO DOWNSTREAM USER (DU)**9. Guidance to Downstream Users to evaluate whether they work inside the boundaries set by the Exposure Scenario:**

Follow all applicable risk management measures (RMM's) to minimise potential exposures to human health and to the

M31034-ES1 - BE

TROCLOSENE SODIUM (ACL® 60) - ES 1

SDS No.: M31034-ES1

Rev. Date: 11/05/2020

environment. See section 6.

END OF EXPOSURE SCENARIO

EXPOSURE SCENARIO ANNEX TO SDS

M31034-ES2 - ES - BE



TROCLOSENE SODIUM (ACL® 60) - ES 2

ES #: M31034-ES2

Revision Date: 2020-24 -August

ANNEX - EXPOSURE SCENARIO

EXPOSURE SCENARIO NAME:	TROCLOSENE SODIUM (ACL® 60) - ES 2
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EXPOSURE SCENARIOS:

- ES1: Formulation of products
- ES2: Textile treatment
- ES3: Use of cleaning products
- ES4: Use of general products (surface treatments and adhesives)
- ES5: Industrial manufacture of articles
- ES6: Biocidal Products

1. Short title of Exposure Scenario: Textile Treatment

2. Description of Activities/Process(es) covered by Exposure Scenario

Sector of Use (SU): SU5 - Manufacture of textiles, leather, fur
SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Product Category (PC): PC23 - Leather tanning, dye, finishing, impregnation and care products
PC34 - Textile dyes, finishing and impregnating products

Process Category (PROC): PROC 8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC 9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC 10 - Roller application or brushing
PROC 13 - Treatment of articles by dipping and pouring

Article Category (AC): Not applicable

Environmental Release Category (ERC): ERC5 - Into or onto a matrix
ERC6b - Industrial use of reactive processing aids
ERC8b - Wide dispersive indoor use of reactive substances in open systems

OPERATIONAL CONDITIONS OF USE

3. Application Conditions:

This exposure scenario covers industrial, professional, and non-professional textile treatment uses of troclosen sodium. The substance hydrolyzes to generate HOCl and cyanuric acid. The HOCl is used in the preparation of textiles (bleaching or shrink proofing of wool). Workers will be exposed to the substance during the textile treatment process when adding it to the process mixture. Workers will not be exposed to HOCl via contact with the treated textile. Textile treatment activities and processes covered in this exposure scenario include: industrial - emptying drums and mixing solutions when loading tanks and washers, professional - emptying containers for large and small loads, and non-professional - emptying containers.

3.1 Duration and frequency of use:

Duration and frequency varies from activity to activity. The maximum duration considered for this exposure scenario is a full working shift (8 hr/day) and 220 days/year. Industrial (Emptying drums): Exposure time per batch = 5 minutes; Number of exposures per 8 hour work shift = 6. Industrial (Mixing solutions): Exposure time per batch = 10 minutes; Number of exposures per 8 hour work shift = 6. Professional (Emptying container - large load): Number of exposures / tasks per 8 hour work shift = 5. Professional (Emptying container - small load): Number of exposures / tasks per 8 hour work shift = 32. Non-Professional (Emptying container): Number of exposures / tasks per 8 day = 1.

4.1 Physical form of substance or preparation:

Solid: Granulated. Solid: Tablets. Liquid.

4.2 Product Specification (Concentration of substance in preparation or article):

- Depending on the textile treatment activity or process, the product concentration can range from 0.1% - 100%
- Industrial (Emptying drums): concentration = 100%
- Industrial (Mixing solutions): concentration = 0.1% - 0.5% solution
- Professional (Emptying container - large load): concentration = 3 g/kg substance
- Professional (Emptying container - small load): concentration = 3 g/kg substance
- Non-Professional (Emptying container): concentration = 3 g/kg substance

4.3 Maximum amount per time or activity:

The amount used per consumer varies from product to product, and from activity to activity. Industrial (Emptying drums): daily exposure per worker = 30 min. Industrial (Mixing solutions): daily exposure per worker = 60 min. Professional (Emptying container - large load): total amount of substance per load = 360g; daily amount of substance = 1800g. Professional (Emptying container - small load): total amount of substance per load = 13.5g; daily amount of substance = 432g. Non-Professional (Emptying container): concentration = total amount of substance per load = 42g; daily amount of substance = 42g.

5. Other relevant operational conditions of use:

- Assumes a good basic standard of occupational hygiene has been implemented
 - Local exhaust ventilation and air filtration systems are used when workers are adding products to minimize personnel inhalation exposure and prevent dust emissions
 - Workers routinely wear standard PPE which includes: chemical resistant gloves, chemical resistant coverall, and safety glasses
-

RISK MANAGEMENT MEASURES RELATED TO HUMAN HEALTH

6.1 Risk Management Measures Related to Human Health

TROCLOSENE SODIUM (ACL® 60) - ES 2

SDS No.: M31034-ES2

Rev. Date: 11/05/2020

Risk Management Measures Targeted to Workers (Industrial):

- This material is corrosive; therefore, risk management measures for human health should focus on the prevention of direct contact with the substance
- This includes but is not limited to wearing PPE consisting of chemical resistant gloves, chemical resistant coveralls, and safety glasses

Engineering Controls (workers):

- Local exhaust ventilation should be used in areas where opening of drums and filling of containers occurs
- In addition, local exhaust ventilation and air filtration systems are used to minimize personnel inhalation exposure and prevent dust emissions when loading tanks and washers in the industrial setting
- Professional uses: There are unlikely to be engineering controls for ventilation but there may be automated dosing systems which would require the professional worker to be exposed once a day when filling the system
- Non-Professional uses: Not applicable

Personal Protective Equipment (PPE), normal working conditions (workers):

- Hand and Eye Protection: the substance is corrosive, therefore, safety goggles and chemical resistant gloves (Butyl rubber, Natural rubber, Neoprene, Nitrile, Polyvinyl chloride (PVC)) should be worn where exposure may be possible (e.g. handling the raw material during opening of drums and filling of containers)
- Respiratory Protection: Half-face respirator with chlorine cartridges (EN140) is required during opening of drums and filling of containers
- Respiratory Protection: Full-face autonomous respirators with supplied air are made available if required during certain activities such as but not limited to maintenance and cleaning. The added protection of a full face piece respirator is required when visible dusty conditions are encountered and eye irritation may occur
- Body Protection: Tyvek type disposable coveralls or dedicated work coveralls supplied and laundered by the employer can be worn when opening or filling drums of dry material
- Body Protection: Acid resistant coveralls should be worn during maintenance and cleaning activities
- Assumes PPE is well maintained and checked regularly
- Respiratory Protective Equipment (RPE) is not used in conjunction with the forced-air supply

Other Risk Management Measures (workers):

Assumes a good basic standard of occupational hygiene is implemented. Workers in the higher exposure jobs/ areas should be identified and trained in the specific hazards and proper methods to protect themselves from the risks. Employer must ascertain that the required PPE is available and used according to instructions. An IOEL of 1.5 mg/m³ chlorine is applicable.

Risk Management Measures Targeted to Professional Use (professionals):

This material is corrosive; therefore, risk management measures for human health should focus on the prevention of direct contact with the substance. This includes but is not limited to wearing PPE consisting of chemical resistant gloves, chemical resistant coveralls, and safety glasses.

Engineering or Product Design Controls (professionals):

- There are unlikely to be engineering controls for ventilation but there may be automated dosing systems which would only require the professional worker to be exposed once a day when filling the system

Personal Protective Equipment (PPE), normal working conditions (professionals):

- A professional may have access to PPE consisting of chemical resistant gloves, coverall and safety glasses

Other Risk Management Measures (professionals):

- Assumes a good basic standard of occupational hygiene is implemented
- Workers in the higher exposure jobs/ areas should be identified and trained in the specific hazards and proper methods to protect themselves from the risks
- Employer must ascertain that the required PPE is available and used according to instructions
- An IOEL of 1.5 mg/m³ chlorine is applicable

Risk Management Measures Targeted to Non-Professional Use (non-professionals):

This material is corrosive; therefore, risk management measures for human health should focus on the prevention of

direct contact with the substance

Engineering Controls (non-professionals):

- Not applicable to this exposure scenario

Personal Protective Equipment (PPE), normal working conditions (non-professionals):

- It is unlikely that a non-professional will use PPE during this activity
- Dry clothing will give the same protection factor as a dry cotton overall

Other Risk Management Measures (non-professionals):

- Not applicable to this exposure scenario
-

RISK MANAGEMENT MEASURES RELATED TO THE ENVIRONMENT

6.2 Risk Management Measures Targeted to Protect the Environment

Environmental Release Category (ERC):

ERC5 - Into or onto a matrix

ERC6b - Industrial use of reactive processing aids

ERC8b- Wide dispersive indoor use of reactive substances in open systems

Risk Management Measures Targeted to Protect the Environment:

The substance hydrolyses to cyanuric acid and HOCl in aqueous solution. The substance is converted to the hydrolysis products in waste water streams or removed from air emissions and recycled back into the production system. Risk Mitigation Measures (RMM) are in place to prevent release of volatile chlorine species to the environment. As there is no release of the substance to the environment from activities covered in this exposure scenario, no additional risk management measures (RMM's) for the environment are required.

WASTE MANAGEMENT MEASURES

7. Waste Management Measures

Waste Related Measures: Air

NaDCC and NaDCC dihydrate are of low volatility. During use of the substance dust and chlorinated fumes can be generated. Engineering controls are in place to mitigate this exposure.

Waste Related Measures: Water

The substance is totally hydrolysed during use to HOCl and CYA. There will be no release of the substance to waste water. Waste is neutralised and diluted to comply with release limits for chlorine and chloride. In the UK the non-statutory environmental quality standards for release to waste water are: Chloride: 250000 µg/L (AA). Chlorine: 2 µg/L (TAC)(AA). Chlorine: 5 µg/L (TAC)(MAC). TAC = Total Available Chlorine

MAC = Maximum Allowable Concentration
AA = Annual Average.

INFORMATION ON ESTIMATED EXPOSURE

TROCLOSENE SODIUM (ACL® 60) - ES 2

SDS No.: M31034-ES2

Rev. Date: 11/05/2020

8.1 Exposure Estimations for Human Health**Workers in industrial settings (applicable)**

Dermal Exposure Estimate (local effects):	Not applicable (N/A)
Activities/Process(es) covered by Dermal Exposure Estimate: PROC 1, PROC 2, PROC 3, PROC 4, PROC 5, PROC 8a, PROC 8b, PROC 9, PROC 14, PROC 15	
Justification For Estimate of Dermal Exposure (local effects): Test material is corrosive; risk mitigation measures should be in place to prevent exposure.	
Dermal Exposure Estimate (systemic effects):	0.429 mg/kg bw/d
Activities/Process(es) covered by Dermal Exposure Estimate: PROC 8a, PROC 9, PROC 10, PROC 13	
Justification for Estimate of Dermal Exposure (systemic effects): To determine worker exposure the BEAT (Bayesian Exposure Assessment Toolkit) contains an appropriate worker exposure model for the loading of slimicides into a closed system. Related scenarios for loading zinc oxide into a closed system can be used to develop a generic exposure value. Potential dermal exposure to the hands is the 75th percentile taken from UK POEM model. The UK POEM model indicates that potential body for this scenario is negligible.	
Inhalation Exposure Estimate:	0.145 mg/m³
Activities/Process(es) covered by Inhalation Exposure Estimate: • PROC 8a • PROC 9 • PROC 10 • PROC 13	
Justification for Estimate of Inhalation Exposure: Inhalation is assumed negligible for this exposure scenario. However, monitoring data from manufacturing and formulation shows that the inhalation in the scenario which can be assumed to be the worst case is equivalent to 0.145 mg/m ³ chlorine.	

9.3 EXPOSURE ESTIMATION FOR PROFESSIONALS**Workers in professional settings (applicable)**

Dermal Exposure Estimate (systemic effect):	0.96 mg/kg bw/d - Small load
Activities/Process(es) covered by Dermal Exposure Estimate: PROC 8a PROC 9 PROC 10 PROC 13	
Justification for Dermal Exposure Estimate: To determine worker exposure the BEAT (Bayesian Exposure Assessment Toolkit) contains an appropriate worker exposure model for the loading of slimicides into a closed system. Related scenarios for loading zinc oxide into a closed system can be used to develop a generic exposure value. Potential dermal exposure to the hands is the 75th percentile taken from UK POEM model. The UK POEM model indicates that potential body for this scenario is negligible	
Dermal Exposure Estimate (systemic effects):	0.3 mg/kg bw/d - Large load
Activities/Process(es) covered by Dermal Exposure Estimate: PROC 8a, PROC 9, PROC 10, PROC 13	
Justification for Dermal Exposure Estimate: To determine worker exposure the BEAT (Bayesian Exposure Assessment Toolkit) contains an appropriate worker exposure model for the loading of slimicides into a closed system. Related scenarios for loading zinc oxide into a closed system can be used to develop a generic exposure value. Potential dermal exposure to the hands is the 75th percentile taken from UK POEM model. The UK POEM model indicates that potential body for this scenario is negligible	
Inhalation Exposure Estimate (local):	0.145 mg/m³
Activities/Process(es) covered by Inhalation Exposure Estimate: PROC 8a, PROC 9, PROC 10, PROC 13	
Justification for Inhalation Exposure Estimate: Inhalation is assumed negligible for this exposure scenario. However, monitoring data from manufacturing and formulation shows that the inhalation in the scenario which can be assumed to be the worst case is equivalent to 0.145 mg/m ³ chlorine	

TROCLOSENE SODIUM (ACL® 60) - ES 2

SDS No.: M31034-ES2

Rev. Date: 11/05/2020

9.4 EXPOSURE ESTIMATION FOR NON-PROFESSIONALS

Use in non-professional settings (applicable)

Dermal Exposure Estimate (systemic effect):	0.6 mg/kg bw/d
Activities/Process(es) covered by Dermal Exposure Estimate: PROC 8a, PROC 9, PROC 10, PROC 13	
Justification for Dermal Exposure Estimate: To determine worker exposure the BEAT (Bayesian Exposure Assessment Toolkit) contains an appropriate worker exposure model for the loading of slimicides into a closed system. Related scenarios for loading zinc oxide into a closed system can be used to develop a generic exposure value. Potential dermal exposure to the hands is the 75th percentile taken from UK POEM model. The UK POEM model indicates that potential body for this scenario is negligible	
Inhalation Exposure Estimate (local):	0.145 mg/m³
Activities/Process(es) covered by Inhalation Exposure Estimate: PROC 8a, PROC 9, PROC 10, PROC 13	
Justification for Inhalation Exposure Estimate: Inhalation is assumed negligible for this exposure scenario. However, monitoring data from manufacturing and formulation shows that the inhalation in the scenario which can be assumed to be the worst case is equivalent to 0.145 mg/m ³ chlorine	

9.5 EXPOSURE ESTIMATION FOR CONSUMERS

Not applicable to this exposure scenario.

INDIRECT EXPOSURE OF HUMANS VIA THE ENVIRONMENT

There will be no indirect exposure to humans via the environment from this exposure scenario.

8.2 Exposure Estimations for Environment**EXPOSURE ESTIMATION FOR ENVIRONMENT**

Exposure concentrations were not calculated for sediments, soil, groundwater, surface water, air, and waste water treatment plants because those compartments are not considered relevant for this exposure scenario. There is no environmental release of the substance. The substance hydrolyzes to HOCl and cyanuric acid. HOCl is used in the textile manufacturing process as a chlorine donor and will react to give chloride ions. Chloride is ubiquitous and is not of concern for release to the environment. All chlorinated isocyanurate hydrolyze to leave cyanuric acid to be released to the environment. As there is no release of the substance to the environment from this use and no exposure estimate for the environment will be calculated.

GUIDANCE TO DOWNSTREAM USER (DU)**9. Guidance to Downstream Users to evaluate whether they work inside the boundaries set by the Exposure Scenario:**

Follow all applicable risk management measures (RMM's) to minimise potential exposures to human health and to the environment. See section 6.

END OF EXPOSURE SCENARIO

EXPOSURE SCENARIO ANNEX TO SDS

M31034-ES3 - ES - BE



TROCLOSENE SODIUM (ACL® 60) - ES 3

ES #: M31034-ES3

Revision Date: 2020-24 -August

ANNEX - EXPOSURE SCENARIO

EXPOSURE SCENARIO NAME:	TROCLOSENE SODIUM (ACL® 60) - ES 3
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EXPOSURE SCENARIOS:

- ES1: Formulation of products
- ES2: Textile treatment
- ES3: Use of cleaning products
- ES4: Use of general products (surface treatments and adhesives)
- ES5: Industrial manufacture of articles
- ES6: Biocidal Products

1. Short title of Exposure Scenario: Use of Cleaning Products

2. Description of Activities/Process(es) covered by Exposure Scenario

Sector of Use (SU):

- SU21 - Consumer uses: Private households (= general public = consumers)
- SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Product Category (PC): PC35 - Washing and cleaning products

Process Category (PROC):

- PROC 8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
- PROC 9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
- PROC 10 - Roller application or brushing
- PROC 13 - Treatment of articles by dipping and pouring

Article Category (AC): Not applicable

Environmental Release Category (ERC):

- ERC5 - Into or onto a matrix
- ERC8b- Wide dispersive indoor use of reactive substances in open systems
- ERC8e- Wide dispersive outdoor use of reactive substances in open systems

OPERATIONAL CONDITIONS OF USE

3. Application Conditions:

This exposure scenario covers the professional, and non-professional cleaning product uses of troclosen sodium. The substance is formulated into cleaning products which may be used by professionals outside the industrial area or by the general public (ES 1). This includes auto-dishwashing solids and surface cleaners. The substance is incorporated into the cleaning product at a maximum of 5%. Upon contact with an aqueous solution the substance will hydrolyze generating cyanuric acid and HOCl, which reacts rapidly upon contact with organic matter to form chloride ions. Users of the cleaning products will only be exposed to the substance from handling the products during loading and mixing processes.

3.1 Duration and frequency of use:

Duration and frequency varies from activity to activity. The maximum duration considered for this exposure scenario is a full working shift (8 hr/day) and 300 days per year. Professional: Professional cleaners will be exposed to the dry products for a maximum of 300 days per year. Mixing of the cleaning solutions may take place up to 16 times a day in an 8 hour shift. Professional use of a dishwashing product for manual cleaning will take a total of 8 minutes in an 8 hour shift (i.e. 1 minute, 8 times a day). Loading the product into a commercial dishwasher would take 10 minutes once a day. Mixing of surface cleaners takes a maximum of 16 minutes a day (8 times, 2 minutes a day). For both dish washing and surface cleaning the total duration of mixing the products in water will take 26 minutes. Non-Professional: Non-Professional cleaners load the product for manual dishwashing for 1 minute per task, averaging 3 tasks per day, totaling 3 minutes per day. For surface cleaning, the total is 2 minutes per day. For both dishwashing and surface cleaning the total duration of mixing the products in water will take 5 minutes.

4.1 Physical form of substance or preparation:

Solid: Granulated. Solid: Tablets. Liquid.

4.2 Product Specification (Concentration of substance in preparation or article):

- For both Professional and Non-Professional uses: the maximum substance concentration is 5% in the cleaning products it is incorporated in

4.3 Maximum amount per time or activity:

Refer to the information in section 3.1 Duration and frequency of use.

RISK MANAGEMENT MEASURES RELATED TO HUMAN HEALTH

6.1 Risk Management Measures Related to Human Health

Risk Management Measures Targeted to Professional Use (professionals):

This material is corrosive; therefore, risk management measures for human health should focus on the prevention of direct contact with the substance. This includes but is not limited to wearing PPE consisting of chemical resistant gloves, chemical resistant coveralls, and safety glasses.

Engineering or Product Design Controls (professionals):

- There are unlikely to be engineering controls for ventilation but there may be automated dosing systems which would only require the professional worker to be exposed once a day when filling the system

Personal Protective Equipment (PPE), normal working conditions (professionals):

- A professional may have access to PPE consisting of chemical resistant gloves, coverall and safety glasses

Other Risk Management Measures (professionals):

TROCLOSENE SODIUM (ACL® 60) - ES 3

SDS No.: M31034-ES3

Rev. Date: 11/05/2020

- Assumes a good basic standard of occupational hygiene is implemented
- Workers in the higher exposure jobs/ areas should be identified and trained in the specific hazards and proper methods to protect themselves from the risks
- Employer must ascertain that the required PPE is available and used according to instructions
- An IOEL of 1.5 mg/m³ chlorine is applicable

Risk Management Measures Targeted to Non-Professional Use (non-professionals):

This material is corrosive; therefore, risk management measures for human health should focus on the prevention of direct contact with the substance

Engineering Controls (non-professionals):

- Not applicable to this exposure scenario

Personal Protective Equipment (PPE), normal working conditions (non-professionals):

- It is unlikely that a non-professional will use PPE during this activity
- Dry clothing will give the same protection factor as a dry cotton overall

Other Risk Management Measures (non-professionals):

- Not applicable to this exposure scenario
-

RISK MANAGEMENT MEASURES RELATED TO THE ENVIRONMENT

6.2 Risk Management Measures Targeted to Protect the Environment

Environmental Release Category (ERC):

ERC5 - Into or onto a matrix

ERC8b- Wide dispersive indoor use of reactive substances in open systems

ERC8e- Wide dispersive outdoor use of reactive substances in open systems

Risk Management Measures Targeted to Protect the Environment:

All wastes from the use of cleaning products will be sent to waste water via the sewage treatment plant (STP). The substance hydrolyses to cyanuric acid and HOCl in aqueous solution. The substance is converted to the hydrolysis products in waste water streams. As there is no release of the substance to the environment from activities covered in this exposure scenario, no additional risk management measures (RMM's) for the environment are required.

WASTE MANAGEMENT MEASURES

7. Waste Management Measures

Waste Related Measures: Air

NaDCC and NaDCC dihydrate are of low volatility. During use of the substance dust and chlorinated fumes can be generated. Engineering controls are in place to mitigate this exposure.

Waste Related Measures: Water

The substance is totally hydrolysed during use to HOCl and CYA. There will be no release of the substance to waste water. Waste is neutralised and diluted to comply with release limits for chlorine and chloride. In the UK the non-statutory environmental quality standards for release to waste water are: Chloride: 250000 µg/L (AA). Chlorine: 2 µg/L (TAC)(AA). Chlorine: 5 µg/L (TAC)(MAC). TAC = Total Available Chlorine

MAC = Maximum Allowable Concentration

TROCLOSENE SODIUM (ACL® 60) - ES 3

SDS No.: M31034-ES3

Rev. Date: 11/05/2020

AA = Annual Average.

INFORMATION ON ESTIMATED EXPOSURE**8.1 Exposure Estimations for Human Health****Workers in industrial settings (not applicable)****9.3 EXPOSURE ESTIMATION FOR PROFESSIONALS****Workers in professional settings (applicable)**

Dermal Exposure Estimate (systemic effect):	0.18571 mg/kg bw/d
Activities/Process(es) covered by Dermal Exposure Estimate: PROC 8a PROC 9 PROC 10 PROC 13	
Justification for Dermal Exposure Estimate: To determine worker exposure the BEAT (Bayesian Exposure Assessment Toolkit) contains an appropriate worker exposure model for the loading of slimicides into a closed system. Related scenarios for loading zinc oxide into a closed system can be used to develop a generic exposure value. Potential dermal exposure to the hands is the 75th percentile taken from UK POEM model. The UK POEM model indicates that potential body for this scenario is negligible	

Inhalation Exposure Estimate (local):	0.145 mg/m³
Activities/Process(es) covered by Inhalation Exposure Estimate: PROC 8a, PROC 9, PROC 10, PROC 13	
Justification for Inhalation Exposure Estimate: Inhalation is assumed negligible for this exposure scenario. However, monitoring data from manufacturing and formulation shows that the inhalation in the scenario which can be assumed to be the worst case is equivalent to 0.145 mg/m ³ chlorine	

9.4 EXPOSURE ESTIMATION FOR NON-PROFESSIONALS**Use in non-professional settings (applicable)**

Dermal Exposure Estimate (systemic effect):	0.03571 mg/kg bw/d
Activities/Process(es) covered by Dermal Exposure Estimate: PROC 8a, PROC 9, PROC 10, PROC 13	
Justification for Dermal Exposure Estimate: To determine worker exposure the BEAT (Bayesian Exposure Assessment Toolkit) contains an appropriate worker exposure model for the loading of slimicides into a closed system. Related scenarios for loading zinc oxide into a closed system can be used to develop a generic exposure value. Potential dermal exposure to the hands is the 75th percentile taken from UK POEM model. The UK POEM model indicates that potential body for this scenario is negligible	

Inhalation Exposure Estimate (local):	0.145 mg/m³
Activities/Process(es) covered by Inhalation Exposure Estimate: PROC 8a, PROC 9, PROC 10, PROC 13	
Justification for Inhalation Exposure Estimate: Inhalation is assumed negligible for this exposure scenario. However, monitoring data from manufacturing and formulation shows that the inhalation in the scenario which can be assumed to be the worst case is equivalent to 0.145 mg/m ³ chlorine	

9.5 EXPOSURE ESTIMATION FOR CONSUMERS

Not applicable to this exposure scenario.

INDIRECT EXPOSURE OF HUMANS VIA THE ENVIRONMENT

There will be no indirect exposure to humans via the environment from this exposure scenario.

8.2 Exposure Estimations for Environment

TROCLOSENE SODIUM (ACL® 60) - ES 3

SDS No.: M31034-ES3

Rev. Date: 11/05/2020

EXPOSURE ESTIMATION FOR ENVIRONMENT

Exposure concentrations were not calculated for sediments, soil, groundwater, surface water, air, and waste water treatment plants because those compartments are not considered relevant for this exposure scenario. There is no environmental release of the substance. The substance hydrolyzes to HOCl and cyanuric acid. HOCl is used in the textile manufacturing process as a chlorine donor and will react to give chloride ions. Chloride is ubiquitous and is not of concern for release to the environment. All chlorinated isocyanurate hydrolyze to leave cyanuric acid to be released to the environment. As there is no release of the substance to the environment from this use and no exposure estimate for the environment will be calculated.

GUIDANCE TO DOWNSTREAM USER (DU)

9. Guidance to Downstream Users to evaluate whether they work inside the boundaries set by the Exposure Scenario:

Follow all applicable risk management measures (RMM's) to minimise potential exposures to human health and to the environment. See section 6.

END OF EXPOSURE SCENARIO

EXPOSURE SCENARIO ANNEX TO SDS

M31034-ES4 - ES - BE



TROCLOSENE SODIUM (ACL® 60) - ES 4

ES #: M31034-ES4

Revision Date: 2020-24 -August

ANNEX - EXPOSURE SCENARIO

EXPOSURE SCENARIO NAME:	TROCLOSENE SODIUM (ACL® 60) - ES 4
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EXPOSURE SCENARIOS:

- ES1: Formulation of products
- ES2: Textile treatment
- ES3: Use of cleaning products
- ES4: Use of general products (surface treatments and adhesives)
- ES5: Industrial manufacture of articles
- ES6: Biocidal Products

1. Short title of Exposure Scenario: Industrial Manufacture of Articles

2. Description of Activities/Process(es) covered by Exposure Scenario

Sector of Use (SU): SU3 - Industrial uses: Uses of substances as such or in preparations* at industrial sites

Product Category (PC): PC15 - Non-metal-surface treatment products
PC23 - Leather tanning, dye, finishing, impregnation and care products

Process Category (PROC): PROC 5 - Mixing or blending in batch process for formulation of preparations and articles (multistage and/or significant contact)
PROC 8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC 9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC 10 - Roller application or brushing
PROC 13 - Treatment of articles by dipping and pouring

Article Category (AC): AC5 - Fabrics, textiles and apparel

Environmental Release Category (ERC): ERC2 - Formulation of preparations

OPERATIONAL CONDITIONS OF USE

3. Application Conditions:

This exposure scenario covers the use of troclosen sodium in the industrial manufacture of articles. Worker exposure will only occur when adding the substance to tanks to formulate the aqueous solution which will then be applied to the article. It is expected that the worker would be exposed to NaDCC when adding it to the process mixture. In the solution and after application to the article, the substance will have converted fully to HOCl and to cyanuric acid. Workers will not be exposed to HOCl via contact with the treated article. The solution of the substance is rolled or brushed on to the article or the article can be dipped into the product. Dipping processes will be automated. Brushing and rolling can be automatic or manual.

3.1 Duration and frequency of use:

Duration and frequency varies from activity to activity. The maximum duration considered for this exposure scenario is a full working shift (8 hr/day) and 300 days per year. (Emptying drums): Exposure time per batch = 5 minutes; Number of exposures per 8 hour work shift = 6. (Mixing solutions): Exposure time per batch = 10 minutes; Number of exposures per 8 hour work shift = 6.

4.1 Physical form of substance or preparation:

Solid: Granulated. Solid: Tablets. Liquid.

4.2 Product Specification (Concentration of substance in preparation or article):

- Industrial and Professional workers will use the substance in the same manner
- (Emptying drums): concentration = 100%
- (Mixing solutions): concentration = 6% - 25% solution

4.3 Maximum amount per time or activity:

The amount used per worker varies from activity to activity. (Emptying drums): daily exposure per worker = 30 min. (Mixing solutions): daily exposure per worker = 60 min. Total exposure time per 8 hour work shift = 1.5 hours. Loading time and mixing of the treatment solution would not take longer than 30 minutes.

5. Other relevant operational conditions of use:

- Assumes a good basic standard of occupational hygiene has been implemented
- Local exhaust ventilation and air filtration systems are used when workers are adding products to minimize personnel inhalation exposure and prevent dust emissions
- Workers routinely wear personal protective equipment (PPE) during the opening of drums and filling of containers, which consists of safety goggles, chemical resistant gloves, coverall, and respiratory protective equipment (RPE) of a half-face respirator with chlorine filter (EN140). RPE is not typically worn where local exhaust ventilation is in use

RISK MANAGEMENT MEASURES RELATED TO HUMAN HEALTH

6.1 Risk Management Measures Related to Human Health

Risk Management Measures Targeted to Workers (Industrial):

- The Risk Management Measures (RMM's) listed below apply to both industrial and professional workers
- This material is corrosive; therefore, risk management measures for human health should focus on the prevention of direct contact with the substance
- This includes but is not limited to wearing PPE consisting of chemical resistant gloves, chemical resistant coveralls, and safety glasses

TROCLOSENE SODIUM (ACL® 60) - ES 4

SDS No.: M31034-ES4

Rev. Date: 11/05/2020

Engineering Controls (workers):

- Local exhaust ventilation should be used in areas where opening of drums and filling of containers occurs
- Local exhaust ventilation and air filtration systems are used to minimize worker exposure and prevent dust emissions

Personal Protective Equipment (PPE), normal working conditions (workers):

- Hand and Eye Protection: the substance is corrosive, therefore, safety goggles and chemical resistant gloves (Butyl rubber, Natural rubber, Neoprene, Nitrile, Polyvinyl chloride (PVC)) should be worn where exposure may be possible (e.g. handling the raw material during opening of drums and filling of containers)
- Respiratory Protection: Half-face respirator with chlorine cartridges (EN140) is required during opening of drums and filling of containers
- Respiratory Protection: Full-face autonomous respirators with supplied air are made available if required during certain activities such as but not limited to maintenance and cleaning. The added protection of a full face piece respirator is required when visible dusty conditions are encountered and eye irritation may occur
- Body Protection: Tyvek type disposable coveralls or dedicated work coveralls supplied and laundered by the employer can be worn when opening or filling drums of dry material
- Body Protection: Acid resistant coveralls should be worn during maintenance and cleaning activities
- Assumes PPE is well maintained and checked regularly

Other Risk Management Measures (workers):

Assumes a good basic standard of occupational hygiene is implemented. Workers in the higher exposure jobs/ areas should be identified and trained in the specific hazards and proper methods to protect themselves from the risks. Employer must ascertain that the required PPE is available and used according to instructions. An IOEL of 1.5 mg/m³ chlorine is applicable.

RISK MANAGEMENT MEASURES RELATED TO THE ENVIRONMENT

6.2 Risk Management Measures Targeted to Protect the Environment

Environmental Release Category (ERC):

ERC2 - Formulation of preparations

Risk Management Measures Targeted to Protect the Environment:

The substance hydrolyses to cyanuric acid and HOCl in aqueous solution. The substance is converted to the hydrolysis products in waste water streams or removed from air emissions and recycled back into the production system. Risk Mitigation Measures (RMM) are in place to prevent release of volatile chlorine species to the environment. As there is no release of the substance to the environment from manufacture and formulation no exposure assessment for the environment was conducted.

WASTE MANAGEMENT MEASURES

7. Waste Management Measures

Waste Related Measures: Air

Material is of low volatility. During the use of the substance dust and chlorinated fumes can be generated. Engineering controls are in place to mitigate this exposure. Dusts are filtered from extracted air and disposed of as chemical waste for incineration.

TROCLOSENE SODIUM (ACL® 60) - ES 4

SDS No.: M31034-ES4

Rev. Date: 11/05/2020

Waste Related Measures: Water

Any aqueous waste from the manufacturing process should be filtered to remove solids, which should be recycled back into the process. The substance is totally hydrolyzed during use to HOCl and cyanuric acid (CYA). There will be no release of the substance to waste water. Waste is neutralized and diluted to comply with release limits for chlorine and chloride.

INFORMATION ON ESTIMATED EXPOSURE**8.1 Exposure Estimations for Human Health**

TIER: Tier 1

Professional workers will be exposed in the same manner to the substance as industry workers for this use. Exposure times are likely to be shorter and have lower volumes. Therefore industry workers are considered as a worst case in this scenario.

Dermal Exposure Estimate (local effects):	Not applicable (N/A)
Activities/Process(es) covered by Dermal Exposure Estimate: PROC 5, PROC 8a, PROC 9, PROC 10, PROC 13	
Justification For Estimate of Dermal Exposure (local effects): Test material is corrosive; risk mitigation measures should be in place to prevent exposure.	
Dermal Exposure Estimate (systemic effects):	27.42 mg/kg bw/d
Activities/Process(es) covered by Dermal Exposure Estimate: PROC 5, PROC 8a, PROC 9, PROC 10, PROC 13	
Justification for Estimate of Dermal Exposure (systemic effects): All applicable process categories (PROC) were evaluated. PROC 10 had the highest dermal exposure value derived by Ectoc TRA worker tool when no risk mitigation measures are applied.	
Dermal Exposure Estimate:	systemic effects - 13.71 mg/kg bw/d
Activities/Process(es) covered by Dermal Exposure Estimate: PROC 5, PROC 8a, PROC 9, PROC 10, PROC 13	
Justification for Estimate of Dermal Exposure: All applicable process categories (PROC) were evaluated. PROC 8a had the highest dermal exposure value derived by Ectoc TRA worker tool when no risk mitigation measures are applied.	
Activities/Process(es) covered by Dermal Exposure Estimate: PROC 5, PROC 8a, PROC 9, PROC 10, PROC 13	
Activities/Process(es) covered by Dermal Exposure Estimate: PROC 5, PROC 8a, PROC 9, PROC 10, PROC 13	
Inhalation Exposure Estimate:	55 mg/m ³
Activities/Process(es) covered by Inhalation Exposure Estimate: • PROC 5 • PROC 8a • PROC 9 • PROC 10 • PROC 13	
Justification for Estimate of Inhalation Exposure: All applicable process categories (PROC) were evaluated. PROC 10 had the highest exposure value derived by Ectoc TRA worker tool when no risk mitigation measures are applied.	
Inhalation Exposure Estimate:	0.5 mg/m ³

TROCLOSENE SODIUM (ACL® 60) - ES 4

SDS No.: M31034-ES4

Rev. Date: 11/05/2020

Activities/Process(es) covered by Inhalation Exposure Estimate:

- PROC 5
- PROC 8a
- PROC 9
- PROC 10
- PROC 13

Justification for Estimate of Inhalation Exposure:

All applicable process categories (PROC) were evaluated. PROC 8a had the highest exposure value derived by Ecetoc TRA worker tool when no risk mitigation measures are applied.

TIER: Tier 2 - Values used for risk characterization calculations

Note: Inhalation - Engineering processes such as Local Exhaust Ventilation (LEV) will be in use in areas where application of the product takes place. Use of LEV gives a protection factor of 90%

Dermal Exposure Estimate (local effects):**Not applicable****Justification For Estimate of Dermal Exposure (local effects):**

Test material is corrosive, risk mitigation measures should be in place to prevent exposure.

Dermal Exposure Estimate (systemic effects):**1.371 mg/kg bw/d****Justification for Estimate of Dermal Exposure (systemic effects):**

All applicable process categories (PROC) were evaluated. PROC 8a had the highest exposure value derived by Ecetoc TRA worker tool when no risk mitigation measures are applied.

Inhalation Exposure Estimate:**0.02 mg/m³****Justification for Estimate of Inhalation Exposure:**

All applicable process categories (PROC) were evaluated. PROC 8a had the highest exposure value derived by Ecetoc TRA worker tool when no risk mitigation measures are applied.

9.5 EXPOSURE ESTIMATION FOR CONSUMERS

Not applicable to this exposure scenario.

INDIRECT EXPOSURE OF HUMANS VIA THE ENVIRONMENT

There will be no indirect exposure to humans via the environment from this exposure scenario.

8.2 Exposure Estimations for Environment**EXPOSURE ESTIMATION FOR ENVIRONMENT**

Exposure concentrations were not calculated for sediments, soil, groundwater, surface water, air, and waste water treatment plants because those compartments are not considered relevant for this exposure scenario. There is no environmental release of the substance. The substance hydrolyzes to HOCl and cyanuric acid.

GUIDANCE TO DOWNSTREAM USER (DU)**9. Guidance to Downstream Users to evaluate whether they work inside the boundaries set by the Exposure Scenario:**

Follow all applicable risk management measures (RMM's) to minimise potential exposures to human health and to the environment. See section 6.

M31034-ES4 - BE

TROCLOSENE SODIUM (ACL® 60) - ES 4

SDS No.: M31034-ES4

Rev. Date: 11/05/2020

END OF EXPOSURE SCENARIO

EXPOSURE SCENARIO ANNEX TO SDS

M31034-ES5 - ES - BE



TROCLOSENE SODIUM (ACL® 60) - ES 5

ES #: M31034-ES5

Revision Date: 2020-24 -August

ANNEX - EXPOSURE SCENARIO

EXPOSURE SCENARIO NAME:	TROCLOSENE SODIUM (ACL® 60) - ES 5
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EXPOSURE SCENARIOS:

- ES1: Formulation of products
- ES2: Textile treatment
- ES3: Use of cleaning products
- ES4: Use of general products (surface treatments and adhesives)
- ES5: Industrial manufacture of articles
- ES6: Biocidal Products

1. Short title of Exposure Scenario: Industrial Manufacture of Articles

2. Description of Activities/Process(es) covered by Exposure Scenario

Sector of Use (SU): SU3 - Industrial uses: Uses of substances as such or in preparations* at industrial sites

Product Category (PC): PC15 - Non-metal-surface treatment products
PC23 - Leather tanning, dye, finishing, impregnation and care products

Process Category (PROC): PROC 5 - Mixing or blending in batch process for formulation of preparations and articles (multistage and/or significant contact)
PROC 8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC 9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC 10 - Roller application or brushing
PROC 13 - Treatment of articles by dipping and pouring

Article Category (AC): AC5 - Fabrics, textiles and apparel

Environmental Release Category (ERC): ERC2 - Formulation of preparations

OPERATIONAL CONDITIONS OF USE

3. Application Conditions:

This exposure scenario covers the use of troclosen sodium in the industrial manufacture of articles. Worker exposure will only occur when adding the substance to tanks to formulate the aqueous solution which will then be applied to the article. It is expected that the worker would be exposed to NaDCC when adding it to the process mixture. In the solution and after application to the article, the substance will have converted fully to HOCl and to cyanuric acid. Workers will not be exposed to HOCl via contact with the treated article. The solution of the substance is rolled or brushed on to the article or the article can be dipped into the product. Dipping processes will be automated. Brushing and rolling can be automatic or manual.

3.1 Duration and frequency of use:

Duration and frequency varies from activity to activity. The maximum duration considered for this exposure scenario is a full working shift (8 hr/day) and 300 days per year. (Emptying drums): Exposure time per batch = 5 minutes; Number of exposures per 8 hour work shift = 6. (Mixing solutions): Exposure time per batch = 10 minutes; Number of exposures per 8 hour work shift = 6.

4.1 Physical form of substance or preparation:

Solid: Granulated. Solid: Tablets. Liquid.

4.2 Product Specification (Concentration of substance in preparation or article):

- Industrial and Professional workers will use the substance in the same manner
- (Emptying drums): concentration = 100%
- (Mixing solutions): concentration = 6% - 25% solution

4.3 Maximum amount per time or activity:

The amount used per worker varies from activity to activity. (Emptying drums): daily exposure per worker = 30 min. (Mixing solutions): daily exposure per worker = 60 min. Total exposure time per 8 hour work shift = 1.5 hours. Loading time and mixing of the treatment solution would not take longer than 30 minutes.

5. Other relevant operational conditions of use:

- Assumes a good basic standard of occupational hygiene has been implemented
- Local exhaust ventilation and air filtration systems are used when workers are adding products to minimize personnel inhalation exposure and prevent dust emissions
- Workers routinely wear personal protective equipment (PPE) during the opening of drums and filling of containers, which consists of safety goggles, chemical resistant gloves, coverall, and respiratory protective equipment (RPE) of a half-face respirator with chlorine filter (EN140). RPE is not typically worn where local exhaust ventilation is in use

RISK MANAGEMENT MEASURES RELATED TO HUMAN HEALTH

6.1 Risk Management Measures Related to Human Health

Risk Management Measures Targeted to Workers (Industrial):

- The Risk Management Measures (RMM's) listed below apply to both industrial and professional workers
- This material is corrosive; therefore, risk management measures for human health should focus on the prevention of direct contact with the substance
- This includes but is not limited to wearing PPE consisting of chemical resistant gloves, chemical resistant coveralls, and safety glasses

TROCLOSENE SODIUM (ACL® 60) - ES 5

SDS No.: M31034-ES5

Rev. Date: 11/05/2020

Engineering Controls (workers):

- Local exhaust ventilation should be used in areas where opening of drums and filling of containers occurs
- Local exhaust ventilation and air filtration systems are used to minimize worker exposure and prevent dust emissions

Personal Protective Equipment (PPE), normal working conditions (workers):

- Hand and Eye Protection: the substance is corrosive, therefore, safety goggles and chemical resistant gloves (Butyl rubber, Natural rubber, Neoprene, Nitrile, Polyvinyl chloride (PVC)) should be worn where exposure may be possible (e.g. handling the raw material during opening of drums and filling of containers)
- Respiratory Protection: Half-face respirator with chlorine cartridges (EN140) is required during opening of drums and filling of containers
- Respiratory Protection: Full-face autonomous respirators with supplied air are made available if required during certain activities such as but not limited to maintenance and cleaning. The added protection of a full face piece respirator is required when visible dusty conditions are encountered and eye irritation may occur
- Body Protection: Tyvek type disposable coveralls or dedicated work coveralls supplied and laundered by the employer can be worn when opening or filling drums of dry material
- Body Protection: Acid resistant coveralls should be worn during maintenance and cleaning activities
- Assumes PPE is well maintained and checked regularly

Other Risk Management Measures (workers):

Assumes a good basic standard of occupational hygiene is implemented. Workers in the higher exposure jobs/ areas should be identified and trained in the specific hazards and proper methods to protect themselves from the risks. Employer must ascertain that the required PPE is available and used according to instructions. An IOEL of 1.5 mg/m³ chlorine is applicable.

RISK MANAGEMENT MEASURES RELATED TO THE ENVIRONMENT

6.2 Risk Management Measures Targeted to Protect the Environment

Environmental Release Category (ERC):

ERC2 - Formulation of preparations

Risk Management Measures Targeted to Protect the Environment:

The substance hydrolyses to cyanuric acid and HOCl in aqueous solution. The substance is converted to the hydrolysis products in waste water streams or removed from air emissions and recycled back into the production system. Risk Mitigation Measures (RMM) are in place to prevent release of volatile chlorine species to the environment. As there is no release of the substance to the environment from manufacture and formulation no exposure assessment for the environment was conducted.

WASTE MANAGEMENT MEASURES

7. Waste Management Measures

Waste Related Measures: Air

Material is of low volatility. During the use of the substance dust and chlorinated fumes can be generated. Engineering controls are in place to mitigate this exposure. Dusts are filtered from extracted air and disposed of as chemical waste for incineration.

TROCLOSENE SODIUM (ACL® 60) - ES 5

SDS No.: M31034-ES5

Rev. Date: 11/05/2020

Waste Related Measures: Water

Any aqueous waste from the manufacturing process should be filtered to remove solids, which should be recycled back into the process. The substance is totally hydrolyzed during use to HOCl and cyanuric acid (CYA). There will be no release of the substance to waste water. Waste is neutralized and diluted to comply with release limits for chlorine and chloride.

INFORMATION ON ESTIMATED EXPOSURE**8.1 Exposure Estimations for Human Health****TIER:** Tier 1

Professional workers will be exposed in the same manner to the substance as industry workers for this use. Exposure times are likely to be shorter and have lower volumes. Therefore industry workers are considered as a worst case in this scenario.

Dermal Exposure Estimate (local effects):	Not applicable (N/A)
Activities/Process(es) covered by Dermal Exposure Estimate: PROC 5, PROC 8a, PROC 9, PROC 10, PROC 13	
Justification For Estimate of Dermal Exposure (local effects): Test material is corrosive; risk mitigation measures should be in place to prevent exposure.	
Dermal Exposure Estimate (systemic effects):	27.42 mg/kg bw/d
Activities/Process(es) covered by Dermal Exposure Estimate: PROC 5, PROC 8a, PROC 9, PROC 10, PROC 13	
Justification for Estimate of Dermal Exposure (systemic effects): All applicable process categories (PROC) were evaluated. PROC 10 had the highest dermal exposure value derived by Ectoc TRA worker tool when no risk mitigation measures are applied.	
Dermal Exposure Estimate:	systemic effects - 13.71 mg/kg bw/d
Activities/Process(es) covered by Dermal Exposure Estimate: PROC 5, PROC 8a, PROC 9, PROC 10, PROC 13	
Justification for Estimate of Dermal Exposure: All applicable process categories (PROC) were evaluated. PROC 8a had the highest dermal exposure value derived by Ectoc TRA worker tool when no risk mitigation measures are applied.	
Activities/Process(es) covered by Dermal Exposure Estimate: PROC 5, PROC 8a, PROC 9, PROC 10, PROC 13	
Activities/Process(es) covered by Dermal Exposure Estimate: PROC 5, PROC 8a, PROC 9, PROC 10, PROC 13	
Inhalation Exposure Estimate:	55 mg/m ³
Activities/Process(es) covered by Inhalation Exposure Estimate: • PROC 5 • PROC 8a • PROC 9 • PROC 10 • PROC 13	
Justification for Estimate of Inhalation Exposure: All applicable process categories (PROC) were evaluated. PROC 10 had the highest exposure value derived by Ectoc TRA worker tool when no risk mitigation measures are applied.	
Inhalation Exposure Estimate:	0.5 mg/m ³

TROCLOSENE SODIUM (ACL® 60) - ES 5

SDS No.: M31034-ES5

Rev. Date: 11/05/2020

Activities/Process(es) covered by Inhalation Exposure Estimate:

- PROC 5
- PROC 8a
- PROC 9
- PROC 10
- PROC 13

Justification for Estimate of Inhalation Exposure:

All applicable process categories (PROC) were evaluated. PROC 8a had the highest exposure value derived by Ecetoc TRA worker tool when no risk mitigation measures are applied.

TIER: Tier 2 - Values used for risk characterization calculations

Note: Inhalation - Engineering processes such as Local Exhaust Ventilation (LEV) will be in use in areas where application of the product takes place. Use of LEV gives a protection factor of 90%

Dermal Exposure Estimate (local effects):**Not applicable****Justification For Estimate of Dermal Exposure (local effects):**

Test material is corrosive, risk mitigation measures should be in place to prevent exposure.

Dermal Exposure Estimate (systemic effects):**1.371 mg/kg bw/d****Justification for Estimate of Dermal Exposure (systemic effects):**

All applicable process categories (PROC) were evaluated. PROC 8a had the highest exposure value derived by Ecetoc TRA worker tool when no risk mitigation measures are applied.

Inhalation Exposure Estimate:**0.02 mg/m³****Justification for Estimate of Inhalation Exposure:**

All applicable process categories (PROC) were evaluated. PROC 8a had the highest exposure value derived by Ecetoc TRA worker tool when no risk mitigation measures are applied.

9.5 EXPOSURE ESTIMATION FOR CONSUMERS

Not applicable to this exposure scenario.

INDIRECT EXPOSURE OF HUMANS VIA THE ENVIRONMENT

There will be no indirect exposure to humans via the environment from this exposure scenario.

8.2 Exposure Estimations for Environment**EXPOSURE ESTIMATION FOR ENVIRONMENT**

Exposure concentrations were not calculated for sediments, soil, groundwater, surface water, air, and waste water treatment plants because those compartments are not considered relevant for this exposure scenario. There is no environmental release of the substance. The substance hydrolyzes to HOCl and cyanuric acid.

GUIDANCE TO DOWNSTREAM USER (DU)**9. Guidance to Downstream Users to evaluate whether they work inside the boundaries set by the Exposure Scenario:**

Follow all applicable risk management measures (RMM's) to minimise potential exposures to human health and to the environment. See section 6.

M31034-ES5 - BE

TROCLOSENE SODIUM (ACL® 60) - ES 5

SDS No.: M31034-ES5

Rev. Date: 11/05/2020

END OF EXPOSURE SCENARIO

EXPOSURE SCENARIO ANNEX TO SDS

M31034-ES6 - ES - BE



TROCLOSENE SODIUM (ACL® 60) - ES 6

ES #: M31034-ES6

Revision Date: 2020-24 -August

ANNEX - EXPOSURE SCENARIO

EXPOSURE SCENARIO NAME:	TROCLOSENE SODIUM (ACL® 60) - ES 6
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EXPOSURE SCENARIOS:

- ES1: Formulation of products
- ES2: Textile treatment
- ES3: Use of cleaning products
- ES4: Use of general products (surface treatments and adhesives)
- ES5: Industrial manufacture of articles
- ES6: Biocidal Products

Comments on exposure scenario: Refer to the BPD dossier for additional information

1. Short title of Exposure Scenario: Biocidal Products

2. Description of Activities/Process(es) covered by Exposure Scenario

Sector of Use (SU):

- SU3 - Industrial uses: Uses of substances as such or in preparations* at industrial sites
- SU5 - Manufacture of textiles, leather, fur
- SU21 - Consumer uses: Private households (= general public = consumers)
- SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Product Category (PC):

- PC8 - Biocidal products (e.g. disinfectants, pest control)
- PC35 - Washing and cleaning products
- PC37 - Water treatment chemicals

Process Category (PROC): Not applicable

Article Category (AC): Not applicable

Biocides Product Type:

- PT2 - Private and public health area disinfectants and other biocidal products
- PT3 - Veterinary hygiene biocidal products

TROCLOSENE SODIUM (ACL® 60) - ES 6

SDS No.: M31034-ES6

Rev. Date: 11/05/2020

PT4 - Food and feed area disinfectants
PT5 - Drinking water disinfectants
PT11 - Preservatives for liquid-cooling and processing systems
PT12 - Slimicides

OPERATIONAL CONDITIONS OF USE

3. Application Conditions:

The substance is an existing active substance undergoing evaluation for Annex I inclusion under 98/8/EC The Biocidal Products Directive for use in the following Product Types and is regarded as registered for these uses: PT 2 Private area and public health area disinfectants and other biocidal products. PT 3 Veterinary hygiene biocidal products. PT 4 Food and feed area disinfectants. PT 5 Drinking water disinfectants. PT 11 Preservatives for liquid-cooling and processing systems. PT 12 Slimicides.

RISK MANAGEMENT MEASURES RELATED TO HUMAN HEALTH

6.1 Risk Management Measures Related to Human Health

Note: These uses or applications are covered under the Biocidal Product Directive (BPD). Refer to the BPD dossier for additional information.

RISK MANAGEMENT MEASURES RELATED TO THE ENVIRONMENT

6.2 Risk Management Measures Targeted to Protect the Environment

Note: These uses or applications are covered under the Biocidal Product Directive (BPD). Refer to the BPD dossier for additional information.

WASTE MANAGEMENT MEASURES

7. Waste Management Measures

Note: These uses or applications are covered under the Biocidal Product Directive (BPD). Refer to the BPD dossier for additional information.

INFORMATION ON ESTIMATED EXPOSURE

TROCLOSENE SODIUM (ACL® 60) - ES 6

SDS No.: M31034-ES6

Rev. Date: 11/05/2020

8.1 Exposure Estimations for Human Health

These uses or applications are covered under the Biocidal Product Directive (BPD). Refer to the BPD dossier for additional information.

Not applicable to this exposure scenario. These uses or applications are covered under the Biocidal Product Directive (BPD). Refer to the BPD dossier for additional information.

8.2 Exposure Estimations for Environment

EXPOSURE ESTIMATION FOR ENVIRONMENT

Not applicable to this exposure scenario. These uses or applications are covered under the Biocidal Product Directive (BPD). Refer to the BPD dossier for additional information.

GUIDANCE TO DOWNSTREAM USER (DU)

Note: These uses or applications are covered under the Biocidal Product Directive (BPD) Refer to the BPD dossier for additional information

9. Guidance to Downstream Users to evaluate whether they work inside the boundaries set by the Exposure Scenario:

These uses or applications are covered under the Biocidal Product Directive (BPD). Refer to the BPD dossier for additional information.

END OF EXPOSURE SCENARIO