SAFETY DATA SHEET

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product identifier

Product Code(s) 2802246-LM
Product Name Monochlor F™ Reagent

Other means of identification

Safety data sheet number M01921
UN/ID no UN2680

Recommended use of the chemical and restrictions on use

Recommended Use Determination of monochloramine and ammonia. Water Analysis.
Restrictions on use None.
Uses advised against None

Details of the supplier of the safety data sheet

Supplier Address
Hexis Cientifica Ltda CNPJ: 53.276.010 / 00001-10 Av. Antonieta Piva Barranqueiros, 385 - Industrial District - Jundiai - SP - Phone: 11 4589-2672

Manufacturer Address
Hach Company, P.O. Box 389, Loveland, CO 80539, USA, +1(970) 669-3050

Emergency telephone number
0800 892 0479
Argentina
Argentina: +(54)-1159839431
Ecuador
Ecuador: +593-01 800 000 906 (Access Code: 334846)
Costa Rica
Costa Rica - National Poison Center: +506-2223-1028
Colombia
Colombia: +57 601 7942539 / 01-800-7102151
United States of America
+1(303) 623-5716 - 24 Hour Service

Section 2: HAZARDS IDENTIFICATION

GHS Classification

Corrosive to metals	Category 1
Acute toxicity - Oral	Category 5
Skin corrosion/irritation	Category 1 Sub-category A
Serious eye damage/eye irritation	Category 1

Label elements

Signal word - Danger

Hazard statements
H290 - May be corrosive to metals
H303 - May be harmful if swallowed
H314 - Causes severe skin burns and eye damage

Precautionary statements
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P280 - Wear protective gloves, protective clothing, eye protection, and face protection
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor
P363 - Wash contaminated clothing before reuse
P405 - Store locked up
P501 - Dispose of contents/ container to an approved waste disposal plant
P234 - Keep only in original container
P390 - Absorb spillage to prevent material damage

Other Hazards Known

Other hazards which do not result in classification
No information available
0.01 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
0.01 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
0.01 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)
0.01 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
0.01 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substance
Not applicable

Mixture

Pure substance/mixture Mixture

Chemical Name Not applicable
CAS No Not applicable

Chemical name	CAS No.	Percent Range
Butanedioic acid, 2,3-dihydroxy-[R-(R*,R*)]-, disodium salt	868-18-8	20 - 30%
Lithium hydroxide monohydrate	1310-66-3	<10%
Sodium nitroferricyanide	14402-89-2	1 - 5%

Section 4: FIRST AID MEASURES

Description of necessary first aid measures

General advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Inhalation Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get immediate medical advice/attention.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical advice/attention.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get immediate medical advice/attention.

Ingestion Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Get immediate medical advice/attention.

For emergency responders

Self-protection of the first aider Avoid contact with skin, eyes or clothing. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

Most important symptoms/effects, acute and delayed

Symptoms Burning sensation.

Indication of immediate medical attention and special treatment needed, if necessary

Note to physicians Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure.

Section 5: FIRE FIGHTING MEASURES

Extinguishing media

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media No information available

Specific hazards arising from the chemical

Specific hazards arising from the chemical The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors.

Flammable properties
During a fire, this product decomposes to form toxic gases.

Explosive properties
Not classified according to GHS criteria.

Hazardous combustion products May emit acrid smoke and fumes.

Specific/special fire-fighting measures

Specific/special fire-fighting measures No information available.

Special protective equipment and precautions for fire-fighters

Special protective equipment for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Attention! Corrosive material. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

For emergency responders Use personal protective equipment as required.

Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Take up mechanically, placing in appropriate containers for disposal.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Other Information Refer to protective measures listed in Sections 7 and 8.

Reference to other sections See section 8 for more information.
See section 13 for more information.

Section 7: HANDLING AND STORAGE

Preventive measures for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

Precautions for safe handling

General Hygiene Considerations Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Regular cleaning of equipment, work area and clothing is recommended. Avoid contact with skin, eyes or clothing. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Wash hands before breaks and immediately after handling the product.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials.

Incompatible materials Oxidizing agent. Acids. Bases.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical name	Brazil	Chile	Argentina	Venezuela
Sodium nitroferricyanide 'CAS #:' 14402-89-2	TWA: 1 mg/m³	Ceiling: 4.7 ppm Ceiling: 5 mg/m³	TWA: 1 mg/m³	TWA: 1 mg/m³

Chemical name	Mexico	Colombia	Uruguay	Peru
Sodium nitroferricyanide 'CAS #:' 14402-89-2	1 mg/m³	TWA: 1 mg/m³	TWA: 1 mg/m³	TWA: 1 mg/m³

Chemical name	ACGIH TLV	OSHA PEL	NIOSH
Sodium nitroferricyanide 1 - 5%	TWA: 1 mg/m³ Fe	TWA: 5 mg/m³ (vacated) TWA: 1 mg/m³ (vacated) TWA: 5 mg/m³ *	IDLH: 25 mg/m³ CN TWA: 1 mg/m³ Fe

Legend See section 16 for terms and abbreviations

Appropriate engineering controls

Engineering Controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Hand Protection Wear suitable gloves. Impervious gloves. Barrier creams may help to protect the exposed areas of skin. Gloves must be inspected prior to use. The selected protective gloves have to satisfy the specifications of EU Directive 2016/425 and the standard EN 374 derived from it. Chemical resistant gloves made of butyl rubber or nitrile rubber category III according to EN 374-1:2016.

Eye/face protection Face protection shield.

Skin and body protection Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron. Avoid contact with eyes, skin and clothing.

General Hygiene Considerations Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Regular cleaning of equipment, work area and clothing is recommended. Avoid contact with skin, eyes or clothing. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Wash hands before breaks and immediately after handling the product.

Environmental exposure controls Local authorities should be advised if significant spillages cannot be contained. Do not allow into any sewer, on the ground or into any body of water.

Thermal hazards None under normal processing.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state Solid
Appearance powder
Color light yellow
Odor Odorless
Odor threshold No data available

Property	Values	Remarks • Method
Molecular weight	No data available	

pH	No data available
Melting point / freezing point	No data available
Initial boiling point and boiling range	No data available
Evaporation rate	Not applicable
Vapor pressure	Not applicable
Relative vapor density	No data available
Specific gravity - VALUE 1	0.7660
Partition coefficient	log K_{ow} ~ 0.58
Soil Organic Carbon-Water Partition Coefficient	log K_{oc} ~ 0.05
Autoignition temperature	No data available
Decomposition temperature	No data available
Dynamic viscosity	Not applicable
Kinematic viscosity	Not applicable

Solubility(ies)

Water solubility

Water solubility classification	Water solubility	Water Solubility Temperature
No information available	No data available	No information available

Solubility in other solvents

Chemical Name	Solubility classification	Solubility	Solubility Temperature
None reported	No information available	No data available	No information available

Other information

Corrosive to metals

Steel Corrosion Rate	No data available
Aluminum Corrosion Rate	No data available

Volatile Organic Compounds (VOC) Content
Not applicable

Chemical name	CAS No.	Volatile organic compounds (VOC) content	CAA (Clean Air Act)
Butanedioic acid, 2,3-dihydroxy-[R-(R*,R*)]-, disodium salt	868-18-8	No data available	-
Lithium hydroxide monohydrate	1310-66-3	No data available	-
Sodium nitroferricyanide	14402-89-2	No data available	-

Explosive properties

Upper explosion limit	No data available
Lower explosion limit	No data available

Flammable properties

Flash point	Not applicable

Flammability Limit in Air

Upper flammability limit:	No data available
Lower flammability limit:	No data available

Oxidizing properties	No data available.
Bulk density	766.0 kg/m^3

Section 10: STABILITY AND REACTIVITY

Reactivity
Not applicable. Corrosive to metal.

Chemical stability
Stability Stable under normal conditions.

Explosion data
Sensitivity to Mechanical Impact None
Sensitivity to Static Discharge None.

Possibility of hazardous reactions
Possibility of Hazardous Reactions None under normal processing.

Hazardous polymerization
None under normal processing.

Conditions to avoid
Conditions to avoid Exposure to air or moisture over prolonged periods.

Incompatible materials
Incompatible materials Oxidizing agent. Acids. Bases.

Hazardous decomposition products
Contact with acids/acid fumes releases toxic cyanide gas. Cyanide. Nitrogen oxides. Sodium oxides.

Section 11: TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation	Corrosive by inhalation. Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal.
Eye contact	Causes burns. Corrosive to the eyes and may cause severe damage including blindness. Causes serious eye damage. May cause irreversible damage to eyes.
Skin contact	Corrosive. Causes severe burns. Avoid contact with skin and clothing.

Ingestion Causes burns. Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways.

Symptoms Redness. Burning. May cause blindness. Coughing and/ or wheezing.

Acute toxicity
May be harmful if swallowed

Mixture
No data available.

Ingredient Acute Toxicity Data
Test data reported below.

Oral Exposure Route

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Butanedioic acid, 2,3-dihydroxy-[R-(R*, R*)]-, disodium salt (20 - 30%) CAS#: 868-18-8	Mouse LD_{50}	4360 mg/kg	None reported	None reported	EPA
Lithium hydroxide monohydrate (<10%) CAS#: 1310-66-3	Rat LD_{50}	120 mg/kg	None reported	None reported	LOLI
Sodium nitroferricyanide (1 - 5%) CAS#: 14402-89-2	Rat LD_{50}	99 mg/kg	None reported	None reported	LOLI

Inhalation (Dust/Mist) Exposure Route

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Lithium hydroxide monohydrate (<10%) CAS#: 1310-66-3	Rat LC_{50}	0.96 mg/L	4 hours	None reported	LOLI

Unknown Acute Toxicity
0.01% of the mixture consists of ingredient(s) of unknown toxicity.

Acute Toxicity Estimations (ATE)

The following values are calculated based on chapter 3.1 of the GHS document

Oral LD50	2,503.20 mg/kg
Dermal LD50	No information available
Mist	No information available
Vapor	No information available
Gas	No information available

Skin corrosion/irritation
Causes severe burns.

Mixture
No data available.

Ingredient Skin Corrosion/Irritation Data
Test data reported below.

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Lithium hydroxide monohydrate (<10%) CAS#: 1310-66-3	Existing human experience	Human	None reported	None reported	Corrosive to skin	ERMA

Serious eye damage/irritation
Classification based on data available for ingredients. Causes burns. Risk of serious damage to eyes.

Mixture
No data available.

Ingredient Eye Damage/Eye Irritation Data
Test data reported below.

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Butanedioic acid, 2,3-dihydroxy-[R-(R*, R*)]-, disodium salt (20 - 30%) CAS#: 868-18-8	None reported	Human	None reported	None reported	Not corrosive or irritating to eyes	ECHA

Respiratory or skin sensitization
Based on available data, the classification criteria are not met.

Mixture
No data available.

Ingredient Sensitization Data
Test data reported below.

Skin Sensitization Exposure Route

Chemical name	Test method	Species	Results	Key literature references and sources for data
Butanedioic acid, 2,3-dihydroxy-[R-(R*, R*)]-, disodium salt (20 - 30%) CAS#: 868-18-8	None reported	Human	Not confirmed to be a skin sensitizer	ECHA

Respiratory Sensitization Exposure Route

Chemical name	Test method	Species	Results	Key literature references and sources for data
Butanedioic acid, 2,3-dihydroxy-[R-(R*, R*)]-, disodium salt (20 - 30%)	None reported	Human	Not confirmed to be a skin sensitizer	ECHA

CAS#: 868-18-8				

STOT - single exposure
Based on available data, the classification criteria are not met.

Mixture
No data available.

Ingredient Specific Target Organ Toxicity Single Exposure Data
No data available.

STOT - repeated exposure
Based on available data, the classification criteria are not met.

Mixture
No data available.

Ingredient Specific Target Organ Toxicity Repeat Exposure Data
No data available.

Carcinogenicity
Based on available data, the classification criteria are not met.

Mixture
No data available.

Ingredient Carcinogenicity Data
No data available.

Chemical name	CAS No.	ACGIH	IARC	NTP	OSHA
Butanedioic acid, 2,3-dihydroxy-[R-(R*,R*)]-, disodium salt	868-18-8	-	-	-	-
Lithium hydroxide monohydrate	1310-66-3	-	-	-	-
Sodium nitroferricyanide	14402-89-2	-	-	-	-

Legend

ACGIH (American Conference of Governmental Industrial Hygienists)	Does not apply
NTP (National Toxicology Program)	Does not apply
OSHA	Does not apply

Germ cell mutagenicity
Based on available data, the classification criteria are not met.

Mixture *invitro* **Data**
No data available.

Substance *invitro* **Data**
No data available.

Mixture *invivo* **Data**
No data available.

Substance *invivo* **Data**
No data available.

Reproductive toxicity
Based on available data, the classification criteria are not met.

Mixture
No data available.

Ingredient Reproductive Toxicity Data
No data available.

Aspiration hazard
Based on available data, the classification criteria are not met.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity Based on available data, the classification criteria are not met.

Unknown Aquatic Toxicity 0.01% of the mixture consists of components(s) of unknown hazards to the aquatic environment.

Mixture

Aquatic Acute Toxicity
No data available.

Aquatic Chronic Toxicity
No data available.

Substance

Aquatic Acute Toxicity
Test data reported below.

Fish

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Butanedioic acid, 2,3-dihydroxy-[R-(R*, R*)]-, disodium salt (20 - 30%) CAS#: 868-18-8	96 hours	None reported	LC_{50}	612000 mg/L	ECOSARS

Crustacea

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Butanedioic acid, 2,3-dihydroxy-[R-(R*, R*)]-, disodium salt (20 - 30%) CAS#: 868-18-8	48 Hours	None reported	LC_{50}	263000 mg/L	ECOSARS

Algae

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Butanedioic acid, 2,3-dihydroxy-[R-(R*, R*)]-, disodium salt (20 - 30%) CAS#: 868-18-8	96 hours	None reported	EC_{50}	623770 mg/L	ECOSARS

Aquatic Chronic Toxicity
No data available.

Persistence and degradability

Mixture
No data available.

Bioaccumulation
Material does not bioaccumulate.
Mixture
No data available.

Partition coefficient log K_{ow} ~ 0.58

Mobility

Soil Organic Carbon-Water Partition Coefficient log K_{oc} ~ 0.05

Other adverse effects

No information available

Chemical name	EU - Endocrine Disruptors Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Endocrine disrupting potential
Sodium nitroferricyanide (1 - 5%) CAS#: 14402-89-2	Group III Chemical	-	-

Section 13: DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

Section 14: TRANSPORT INFORMATION

DOT
Proper shipping name LITHIUM HYDROXIDE MIXTURE
UN/ID no UN2680
Transport hazard class(es) 8
Packing Group II
Special Provisions IB8, IP2, IP4, T3, TP33
Description UN2680, LITHIUM HYDROXIDE MIXTURE, 8, II

Emergency Response Guide Number 154

IMDG
UN number or ID number UN2680
Proper shipping name LITHIUM HYDROXIDE MIXTURE
Transport hazard class(es) 8
Packing Group II
EmS-No F-A, S-B

IATA
Proper shipping name Lithium hydroxide mixture
UN number or ID number UN2680

Transport hazard class(es)	8
Packing group	II
ERG Code	8L

ADR

UN number or ID number	2680
Proper shipping name	LITHIUM HYDROXIDE MIXTURE
Transport hazard class(es)	8
Packing Group	II
Classification code	C6
Description	2680, LITHIUM HYDROXIDE MIXTURE, 8, II
Labels	8

Additional information
There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is not in a reagent set or kit, the classification given above applies.
If the item is part of a reagent set or kit the classification would change to the following:
UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III.
If the item is not regulated, the Chemical Kit classification does not apply.

Section 15: REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Does not comply
IECSC	Complies
KECI	Complies
PICCS	Complies
TCSI	Complies
AICS	Complies
NZIoC	Complies

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
TCSI - Taiwan Chemical Substances Inventory
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

Country Regulations

Brazil
Federal Decree 10.088 / 2019
Standard ABNT NBR 14725
Ordinance no. 2.770 / 2022
Resolution no. 5.998 / 2022 - ANTT
Ordinance no. 426 / 2021
Ordinance no. 256 / 2018
Federal Decree 10.030 / 2019
Ordinance no. 118 / 2019
Law no. 12.305 / 10
Law no. 10.357 / 2001
Ordinance no. 204 / 2022

Ordinance no. 577 / 2021

Argentina
SRT 3359/2015
Resolution 801/2015
Law of Health and Safety and Work (Law 19,587)
Decree 351/79
Regulatory Law 19587

Columbia
Law 253, 1996: Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.
Resolution 2400/1979: Ministry of Labour and Social Security, ACGIH Exposure Limits.
Decision 602, Andean Regulation for the Control of chemical substances used in the illegal manufacture of narcotic drugs and psychotropic substances.
Law 29/1992: Montreal Protocol on Substances that Deplete the Ozone Layer and its Amendments.
Law 55/1993: Recommendation No. 177 on the International Work Conference on Safety in the Use of Chemical Products at Work.
Law 30/1990: Vienna Convention for the Protection of the Ozone Layer.
Law 55/1993: Convention No. 170 on the General Conference of the ILO.

Uruguay
Law 16.157: Approval of the Montreal Protocol on Substances that Deplete the Ozone Layer.
Law 17.283: Regarding environmental protection and management of hazardous wastes.
Presidential Decree 346/11: Implementation of GHS for all manufactured or distributed products.
Presidential Decree 519/984: Regulates the activities relating to the use of radioactive materials and ionizing radiation throughout the country.

Ecuador
Law No. 37 - Environmental Management Act
NTE INEN 2266:2013 - Requirements for Transport, Storage and Handling of Hazardous Materials
Unified Text of Secondary Legislation of the Environment Ministry: Book VI

Section 16: OTHER INFORMATION

Key or legend to abbreviations and acronyms used in the safety data sheet

ACGIH	ACGIH (American Conference of Governmental Industrial Hygienists)
ATSDR	ATSDR (Agency for Toxic Substances and Disease Registry)
CCRIS	CCRIS (Chemical Carcinogenesis Research Information System)
CDC	CDC (Center for Disease Control)
CEPA	CEPA (Canadian Environmental Protection Agency)
CICAD	CICAD (Concise International Chemical Assessment Documents)
ECHA	ECHA (The European Chemicals Agency)
EEA	EEA (European Environment Agency)
EPA	Environmental Protection Agency
ERMA	ERMA (New Zealands Environmental Risk Management Authority)
ECOSARS	Estimation through ECOSARS v1.11 part of the Estimation Programs Interface (EPI) Suite™
FDA	FDA (Food & Drug Administration)
GESTIS	GESTIS (Information System on Hazardous Substances of the German Social Accident Insurance)
HSDB	HSDB (Hazardous Substances Data Bank)
INERIS	INERIS (The National Industrial Environment and Risks Institute)
IPCS INCHEM	IPCS INCHEM (International Programme on Chemical Safety)
IUCLID	IUCLID (The International Uniform Chemical Information Database)
NITE	Japan National Institute of Technology and Evaluation (NITE)
NIH	NIH (National Institutes of Health)
NIOSH	NIOSH (National Institute for Occupational Safety and Health)
LOLI	LOLI (List of Lists - An International Chemical Regulatory Database)
NDF	no data
NICNAS	Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH IDLH	Immediately Dangerous to Life or Health

OSHA	Occupational Safety and Health Administration of the US Department of Labor
PEEN	PEEN (Pan European Ecological Network)
RTECS	RTECS (Registry of Toxic Effects of Chemical Substances)
SIDS	SIDS (Screening Information Dataset) for High Volume Chemicals
SYKE	The Finnish Environment Institute (SYKE)
USDA	USDA (United States Department of Agriculture)
USDC	USDC (United States Department of Commerce)
WHO	WHO (World Health Organization)

Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Ceiling Limit Value	MAC	Maximum Allowable Concentration
X	Listed	Vacated	These values have no official status. The only binding levels of contaminants are those listed in the final OSHA PEL. These lists are for reference purposes only. Please note that some reference state regulations of these "liberated" exposure limits in their state regulations.
SKN*	Skin designation	SKN+	Skin sensitization
RSP+	Respiratory sensitization	**	Hazard Designation
C	Carcinogen	R	Reproductive toxicant
M	mutagen		

NIOSH (RTECS) Number None reported

Key literature references and sources for data
See Section 11: TOXICOLOGICAL INFORMATION
See Section 12: ECOLOGICAL INFORMATION

Prepared By Hach Product Compliance Department

Issue Date 07-Aug-2016

Revision Date 03-Feb-2025

Revision Note None

Restrictions on use None

This material safety data sheet has been prepared according to Brazilian legislation and ABNT NBR 14725:2009

Disclaimer

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

End of Safety Data Sheet