

# SAFETY DATA SHEET

Version 6.12 Revision Date 12/18/2024 Print Date 12/19/2024

#### **SECTION 1. IDENTIFICATION**

#### 1.1 Product identifiers

Product name : Cobalt(II) nitrate hexahydrate

Product Number : 239267
Brand : SIGALD
CAS-No. : 10026-22-9

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

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption

(40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by

MilliporeSigma.

## 1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.

3050 SPRUCE ST ST. LOUIS MO 63103

**UNITED STATES** 

Telephone : +1 314 771-5765 Fax : +1 800 325-5052

## 1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-

527-3887 CHEMTREC (International) 24

Hours/day; 7 Days/week

#### **SECTION 2. HAZARDS IDENTIFICATION**

# GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Oxidizing solids : Category 2

Acute toxicity (Oral) : Category 4

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Serious eye damage : Category 1

Respiratory sensitization : Category 1

Skin sensitization : Category 1

Germ cell mutagenicity Category 2

Carcinogenicity (Inhala-

tion)

: Category 1B

Reproductive toxicity : Category 1B

Specific target organ tox- : Category 2 (Lungs)

icity - repeated exposure

(Inhalation)

Short-term (acute) aquatic hazard

: Category 1

Long-term (chronic) aquatic hazard

: Category 1

#### **GHS label elements**

Hazard pictograms











Signal Word : Danger

: H272 May intensify fire; oxidizer. **Hazard Statements** 

H302 Harmful if swallowed.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H334 May cause allergy or asthma symptoms or

breathing difficulties if inhaled.

H341 Suspected of causing genetic defects. H350 May cause cancer by inhalation.

H360 May damage fertility or the unborn child. H373 May cause damage to organs (Lungs) through

prolonged or repeated exposure if inhaled.

H410 Very toxic to aquatic life with long lasting effects.

#### Precautionary Statements: **Prevention:**

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have

been read and understood. P210 Keep away from heat.

P220 Keep/Store away from clothing/ combustible ma-

terials.



P221 Take any precaution to avoid mixing with combustibles.

P260 Do not breathe dust.

P264 Wash skin thoroughly after handling.

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

P272 Contaminated work clothing must not be allowed out of the workplace.

P273 Avoid release to the environment.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

P285 In case of inadequate ventilation wear respiratory protection.

#### Response:

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth. P302 + P352 IF ON SKIN: Wash with plenty of soap and water

P304 + P341 IF INHALED: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.

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

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER/ doctor.

P363 Wash contaminated clothing before reuse.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

P391 Collect spillage.

## Storage:

P405 Store locked up.

## Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

#### Other hazards

None known.

# **SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Substance

#### Components

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Chemical name	CAS-No.	Concentration (% w/w)
Cobaltous nitrate, hexahydrate	10026-22-9	>= 90 - <= 100

Actual concentration is withheld as a trade secret

#### **SECTION 4. FIRST AID MEASURES**

General advice : First aiders need to protect themselves.

Show this material safety data sheet to the doctor in

attendance.

If inhaled : After inhalation: fresh air. Call in physician.

In case of skin contact : In case of skin contact: Take off immediately all con-

taminated clothing. Rinse skin with water/ shower.

Consult a physician.

In case of eye contact : After eye contact: rinse out with plenty of water.

Immediately call in ophthalmologist.

Remove contact lenses.

If swallowed : After swallowing: immediately make victim drink wa-

ter (two glasses at most).

Consult a physician.

Most important symptoms and effects, both acute and delayed

: The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in

section 11

Protection of first-aiders : For personal protection see section 8.

Notes to physician : No data available

#### **SECTION 5. FIRE-FIGHTING MEASURES**

Suitable extinguishing

media

: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing

media

: For this substance/mixture no limitations of extin-

guishing agents are given.

Specific hazards during

fire fighting

: Not combustible.

Has a fire-promoting effect due to release of oxygen.

Ambient fire may liberate hazardous vapours.

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Hazardous combustion

products

: Nitrogen oxides (NOx)

Cobalt/cobalt oxides

Specific extinguishing

methods

: No data available

Further information : Suppress (knock down) gases/vapors/mists with a

water spray jet.

Prevent fire extinguishing water from contaminating

surface water or the ground water system.

Special protective equip-

ment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

#### **SECTION 6. ACCIDENTAL RELEASE MEASURES**

Personal precautions, protective equipment and emergency procedures Advice for non-emergency personnel:

Avoid generation and inhalation of dusts in all circum-

stances.

Avoid substance contact. Ensure adequate ventilation.

Evacuate the danger area, observe emergency proce-

dures, consult an expert.

Advice for emergency responders: For personal protection see section 8.

Environmental precau-

tions

: Do not let product enter drains.

Methods and materials for containment and

cleaning up

: Cover drains. Collect, bind, and pump off spills.
Observe possible material restrictions (see sections 7

and 10).

Take up carefully. Dispose of properly. Clean up af-

fected area.

Avoid generation of dusts.

#### **SECTION 7. HANDLING AND STORAGE**

For precautions see section 2.2.

Advice on protection against fire and explosion

: Keep away from open flames, hot surfaces and

sources of ignition.

Advice on safe handling : Work under hood. Do not inhale substance/mixture.

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Further information on storage conditions

: Tightly closed.

conditions Keep locked up or in an area accessible only to quali-

fied or authorized persons.

Do not store near combustible materials.

Storage class : 5.1B, Oxidizing hazardous materials

Recommended storage

temperature

: Recommended storage temperature see product label.

## **SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

## Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Cobaltous nitrate, hexahy-drate	10026-22-9	TWA (In- halable particulate matter)	0.02 mg/m3 (Cobalt)	ACGIH

## **Biological occupational exposure limits**

Components	CAS-No.	Control parame-ters	Biological specimen	Sam- pling time	Permissi- ble con- centration	Basis
Cobaltous nitrate, hexahydrate	10026- 22-9	Cobalt (Cobalt)	Urine	End of shift at end of work- week	15 μg/l	ACGIH BEI

**Engineering measures** : No data available

## **Personal protective equipment**

Respiratory protection : required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter

type:

: Filter type P3

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly

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#### documented.

Hand protection

Material : Nitrile rubber Break through time : 480 min Glove thickness : 0.11 mm Protective index : Full contact

Manufacturer : KCL 741 Dermatril® L

: Nitrile rubber Material Break through time : 480 min : 0.11 mm Glove thickness Protective index : Splash contact

Manufacturer

: KCL 741 Dermatril® L

Remarks : This recommendation applies only to the product

> stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-

36124 Eichenzell, Internet: www.kcl.de).

Eye protection : Use equipment for eye protection tested and ap-

proved under appropriate government standards such

as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin and body protection : protective clothing

Hygiene measures : Immediately change contaminated clothing. Apply

preventive skin protection. Wash hands and face af-

ter working with substance.

#### **SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance : crystalline

Color : red

Odor : No data available

Odor Threshold : No data available : 4.0 (68 °F / 20 °C) рΗ

Concentration: 100 g/l

: 131 °F / 55 °C Melting point/ range

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Method: lit.

Boiling point/boiling range : No data available

Flash point : Not applicable

Evaporation rate : No data available

Flammability (solid, gas) : No data available

Flammability (liquids) : No data available

Burning rate : No data available

Upper explosion limit / Upper flammability limit

: No data available

Lower explosion limit / Lower flammability limit : No data available

Vapor pressure : No data available

Relative vapor density : No data available

Relative density : No data available

Density : 1.88 g/cm3

Solubility(ies)

Water solubility : soluble

Partition coefficient: n-

octanol/water

: Not applicable for inorganic substances

Autoignition temperature : No data available

Decomposition tempera-

ture

: No data available

Viscosity, dynamic : No data available

Viscosity, kinematic : No data available

Flow time : No data available

Explosive properties : Not classified as explosive.

Oxidizing properties : The substance or mixture is classified as oxidizing with

the category 2.

Molecular weight : 291.03 g/mol

Particle characteristics

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: No data available Particle size

#### **SECTION 10. STABILITY AND REACTIVITY**

Reactivity : No data available

Chemical stability : The product is chemically stable under standard ambi-

ent conditions (room temperature).

Possibility of hazardous

reactions

: Risk of explosion with: ammonium compounds

carbon/soot

oxidisable substances

Conditions to avoid : Heat.

Exposure to moisture.

no information available

Incompatible materials : No data available

products

Hazardous decomposition : In the event of fire: see section 5

#### **SECTION 11. TOXICOLOGICAL INFORMATION**

#### 11.1 Information on toxicological effects

## **Acute toxicity**

Acute toxicity estimate Oral - 434 mg/kg

(Calculation method)

LD50 Oral - Rat - male and female - 978 mg/kg

(OECD Test Guideline 401) Inhalation: No data available Dermal: No data available

## Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h (OECD Test Guideline 404) Remarks: (anhydrous substance)

The value is given in analogy to the following substances: Cobalt(II) nitrate

# Serious eye damage/eye irritation

Eyes - Rabbit

Result: Causes serious eye damage.

(OECD Test Guideline 405) Remarks: (anhydrous substance)

The value is given in analogy to the following substances: Cobalt(II) nitrate

MGBCK

#### Respiratory or skin sensitization

May cause allergy or asthma symptoms or breathing difficulties if inhaled. Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2) (anhydrous substance)

May cause allergic skin reaction. Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2) (anhydrous substance)

## Germ cell mutagenicity

Suspected of causing genetic defects.

## Carcinogenicity

May cause cancer by inhalation.

IARC: 2A - Group 2A: Probably carcinogenic to humans (Cobaltous nitrate,

hexahydrate)

NTP: RAHC - Reasonably anticipated to be a human carcinogen (Cobaltous

nitrate, hexahydrate)

OSHA: No component of this product present at levels greater than or equal to

0.1% is on OSHA's list of regulated carcinogens.

#### Reproductive toxicity

May damage the unborn child.

May damage fertility.

#### Specific target organ toxicity - single exposure

No data available

#### Specific target organ toxicity - repeated exposure

Inhalation - May cause damage to organs through prolonged or repeated exposure. - Lungs

## **Aspiration hazard**

No data available

## 11.2 Additional Information

Repeated dose toxicity - Rat - male and female - Oral - 90 d - NOAEL (No observed adverse effect level) - 3 mg/kg

RTECS: 0U7355500

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Symptoms of an acute cobalt intoxication: diarrhoea, loss of appetite, drop in body temperature, drop in blood pressure. Toxic effect on kidneys (proteinuria, anuria), heart, and pancreas.

The following applies to nitrites/nitrates in general: methaemoglobinaemia after the uptake of large quantities.

somnolence

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

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#### **SECTION 12. ECOLOGICAL INFORMATION**

## **Ecotoxicity**

#### Components:

## **Cobaltous nitrate, hexahydrate:**

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 1.866

mg/l

End point: mortality Exposure time: 96 h Test Type: semi-static test Analytical monitoring: yes

Method: US-EPA

GLP: yes

Remarks: (anhydrous substance)

The value is given in analogy to the following sub-

stances: Cobalt(II) nitrate

Toxicity to daphnia and other aquatic inverte-

brates

: LC50 (Ceriodaphnia dubia (water flea)): 0.39 mg/l

End point: mortality Exposure time: 48 h Test Type: static test Analytical monitoring: yes

Method: US-EPA

GLP: yes

Remarks: (anhydrous substance)

The value is given in analogy to the following sub-

stances: Cobalt(II) nitrate

Toxicity to algae/aquatic

plants

: ErC50 (Pseudokirchneriella subcapitata): 0.095 mg/l

Exposure time: 72 h Test Type: static test Analytical monitoring: yes

Method: OECD Test Guideline 201

GLP: yes

Remarks: (anhydrous substance)

The value is given in analogy to the following sub-

stances: Cobalt(II) nitrate

M-Factor (Acute aquatic : 10

toxicity)

Toxicity to fish (Chronic

toxicity)

NOEC (Pimephales promelas (fathead minnow)): 0.9

mg/l

End point: mortality Exposure time: 7 d

Test Type: semi-static test

SIGALD- 239267 Page 11 of 17 Analytical monitoring: yes

Method: US-EPA

GLP: yes

Remarks: (anhydrous substance)

The value is given in analogy to the following sub-

stances: Cobalt(II) nitrate

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) NOEC (Ceriodaphnia dubia (water flea)): 0.02 mg/l

End point: mortality Exposure time: 7 d

Test Type: semi-static test Analytical monitoring: yes

Method: US-EPA

GLP: yes

Remarks: (anhydrous substance)

The value is given in analogy to the following sub-

stances: Cobalt(II) nitrate

M-Factor (Chronic aquatic: 1

toxicity)

Toxicity to microorgan-

isms

: EC50 (activated sludge): 120 mg/l

End point: Growth rate Exposure time: 30 min Test Type: static test Analytical monitoring: yes

Method: OECD Test Guideline 209

GLP: yes

Remarks: (anhydrous substance)

The value is given in analogy to the following sub-

stances: Cobalt(II) nitrate

## Persistence and degradability

#### **Components:**

# **Cobaltous nitrate, hexahydrate:**

Biodegradability : Remarks: The methods for determining the biological

degradability are not applicable to inorganic substanc-

es.

## **Bioaccumulative potential**

#### **Components:**

## Cobaltous nitrate, hexahydrate:

Partition coefficient: n- : Remarks: Not applicable for inorganic substances

octanol/water

#### Mobility in soil

No data available

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#### Other adverse effects

#### **Product:**

Ozone-Depletion Potential: Regulation: 40 CFR Protection of Environment; Part 82

Protection of Stratospheric Ozone - CAA Section 602

Class I Substances

Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR

82, Subpt. A, App.A + B).

## **Components:**

## **Cobaltous nitrate, hexahydrate:**

Additional ecological in- : Discharge into the environment must be avoided.

formation

#### **SECTION 13. DISPOSAL CONSIDERATIONS**

## **Disposal methods**

Waste from residues : Waste material must be disposed of in accordance

> with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product

itself.

## **SECTION 14. TRANSPORT INFORMATION**

#### **International Regulations**

IATA-DGR

UN/ID No. : UN 1477

Proper shipping name : Nitrates, inorganic, n.o.s.

: 5.1 Class Packing group : II

Labels Division 5.1 - Oxidizing substances

Packing instruction (cargo: 562

aircraft)

Packing instruction (pas- : 558

senger aircraft)

IMDG-Code

UN number : UN 1477

Proper shipping name : NITRATES, INORGANIC, N.O.S.

(Cobaltous nitrate, hexahydrate)

: 5.1 Class : II Packing group : 5.1 Labels EmS Code : F-A, S-Q Marine pollutant : yes

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

Not applicable for product as supplied.

## **National regulation**

49 CFR Road

UN/ID/NA number : UN 1477

Proper shipping name : Nitrates, inorganic, n.o.s.

Class : 5.1 Packing group : II

Labels : Division 5.1 - Oxidizing substances

ERG Code : 140 Marine pollutant : no

Poison Inhalation Hazard : No

## **Special precautions for user**

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

#### **SECTION 15. REGULATORY INFORMATION**

## **CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

## **SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

## SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Haz-

ards

: Reactivity Hazard Acute Health Hazard Chronic Health Hazard

**SARA 313** : The following components are subject to reporting

levels established by SARA Title III, Section 313:

Cobaltous ni- 10026-22- >= 90 - <= 100 %

trate, hexahy- 9

drate

## **Clean Air Act**

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B). The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 112 (40 CFR 61):

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Cobaltous nitrate, 10026-22-9 >= 90 - <= 100 % hexahydrate

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489).

#### **Clean Water Act**

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. Clean-Water Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

This product does not contain any priority pollutants related to the U.S. Clean Water Act

## **US State Regulations**

## **Massachusetts Right To Know**

Cobaltous nitrate, hexahydrate 10026-22-9

## Pennsylvania Right To Know

Cobaltous nitrate, hexahydrate 10026-22-9

## **Maine Chemicals of High Concern**

Product does not contain any listed chemicals

## **Vermont Chemicals of High Concern**

Cobaltous nitrate, hexahydrate 10026-22-9

#### **Washington Chemicals of High Concern**

Cobaltous nitrate, hexahydrate 10026-22-9

## The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

#### **TSCA list**

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

## **SECTION 16. OTHER INFORMATION**

#### Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI : ACGIH - Biological Exposure Indices (BEI)

ACGIH / TWA : 8-hour, time-weighted average

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Re-

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sponse, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT -Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA -Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

Revision Date : 12/18/2024

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