

complies with OSHA Hazard Communication Standard 29 CFR 1910.1200

Palladium Nitrate sol. L508P 2230

Version 10.0 Revision Date: 02/03/2023

Date of last issue: 12/09/2022 Date of first issue: 12/13/2016

SECTION 1. IDENTIFICATION

Product name

Palladium Nitrate sol. L508P

Product code

5126741

Manufacturer or supplier's details

Company name of supplier

Heraeus Precious Metals

North America LLC

Address

Carmenita Road 15524 Santa Fe Springs 90670

Telephone

(562) 921-7464

Telefax

(562) 926-5333 +1 800 535 5053

National Emergency Telephone Number

GBK/Infotrac ID 105241

This telephone number is available 24 hours per day, 7 days

per week.

E-mail address of person responsible for the SDS

sds@heraeus.com

(Heraeus Holding: EHS Chemical Safety)

Recommended use of the chemical and restrictions on use

Recommended use

Industrial use

SECTION 2. HAZARDS IDENTIFICATION

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

Corrosive to Metals

Category 1

Acute toxicity (Oral)

Category 4

Skin corrosion

Category 1B

Serious eye damage

Category 1

GHS label elements

Hazard pictograms

Signal Word

Danger

Hazard Statements

H290 May be corrosive to metals.

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

SAFETY DATA SHEET

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Palladium Nitrate sol. L508P

2230

Version

Revision Date: 02/03/2023

Date of last issue: 12/09/2022 Date of first issue: 12/13/2016

Precautionary Statements

Prevention:

P280 Wear protective gloves/ protective clothing/ eye protection/

face protection.

Response:

P301 + P312 + P330 IF SWALLOWED: Call a POISON

CENTER/ doctor if you feel unwell. Rinse mouth.

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 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON

CENTER/ doctor.

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.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture

Mixture

Chemical nature

inorganic

Components

Chemical name	CAS-No.	Concentration (% w/w)
Palladium dinitrate	10102-05-3	>= 30 - < 50
Nitric acid	7697-37-2	>= 10 - < 20

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

General advice

First aider needs to protect himself.

Move out of dangerous area.

Show this material safety data sheet to the doctor in atten-

dance.

If inhaled

Move to fresh air.

If breathing is irregular or stopped, administer artificial respira-

ion.



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Palladium Nitrate sol. L508P 2230

Version 10.0 Revision Date: 02/03/2023

Date of last issue: 12/09/2022 Date of first issue: 12/13/2016

Get medical attention.

In case of skin contact

Take off all contaminated clothing immediately.

Get medical attention immediately.
Wash off with soap and plenty of water.

In case of eye contact

In case of eye contact, remove contact lens and rinse immediately with plenty of water, also under the eyelids, for at least

15 minutes.

Keep eye wide open while rinsing.

Protect unharmed eye.
Call a physician immediately.

If swallowed

Immediately give large quantities of water to drink.

Do NOT induce vomiting. Get medical attention. Harmful if swallowed.

Most important symptoms and effects, both acute and

Causes serious eye damage.

delayed Notes to physician

Causes severe burns. Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Use extinguishing measures that are appropriate to local cir-

cumstances and the surrounding environment.

Specific hazards during fire fighting

Exposure to decomposition products may be a hazard to

health.

Hazardous combustion prod-

Nitrogen oxides (NOx)

Metal o

Metal oxides

Further information

ucts

Use a water spray to cool fully closed containers.

Prevent fire extinguishing water from contaminating surface

water or the ground water system.

Special protective equipment

for fire-fighters

In the event of fire, wear self-contained breathing apparatus.

Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emer-

gency procedures

Follow safe handling advice and personal protective

equipment recommendations. Ensure adequate ventilation. Evacuate personnel to safe areas.

Refer to protective measures listed in sections 7 and 8.

Environmental precautions

Do not allow contact with soil, surface or ground water.

Do not let product enter drains.

If the product contaminates rivers and lakes or drains inform

respective authorities.

SAFETY DATA SHEET

complies with OSHA Hazard Communication Standard 29 CFR 1910.1200

Palladium Nitrate sol. L508P 2230

Version 10.0

Revision Date: 02/03/2023

Date of last issue: 12/09/2022 Date of first issue: 12/13/2016

Methods and materials for containment and cleaning up

Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local /

national regulations (see section 13).

Sweep up or vacuum up spillage and collect in suitable con-

tainer for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling

Provide sufficient air exchange and/or exhaust in work rooms.

Wear personal protective equipment.

Avoid inhalation, ingestion and contact with skin and eyes. Smoking, eating and drinking should be prohibited in the ap-

plication area.

Conditions for safe storage

Keep tightly closed in a dry, cool and well-ventilated place.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Nitric acid	7697-37-2	TWA	2 ppm	ACGIH
		STEL	4 ppm	ACGIH
		ST	4 ppm 10 mg/m3	NIOSH REL
		TWA	2 ppm 5 mg/m3	NIOSH REL
		TWA	2 ppm 5 mg/m3	OSHA Z-1

Engineering measures

: Provide sufficient air exchange and/or exhaust in work

rooms.

Personal protective equipment

Respiratory protection : Use respiratory protection unless adequate local exhaust

ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.

Filter type : Recommended Filter type:

Filter type ABEK-P

Hand protection

Remarks : Before removing gloves clean them with soap and water.

Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. Please observe the instructions regarding permeability and breakt-



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Palladium Nitrate sol. L508P 2230

Version 10.0

Revision Date: 02/03/2023

Date of last issue: 12/09/2022 Date of first issue: 12/13/2016

hrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. As the product is a mixture of several substances, the durability of the glove materials cannot be calculated in advance and has to be tested before

Eye protection

Skin and body protection

Safety glasses with side-shields

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures

Keep away from food and drink.

Wash hands before breaks and at the end of workday.

Keep working clothes separately.

Remove and wash contaminated clothing and gloves,

including the inside, before re-use.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

liquid

Color

brown

Odor

characteristic

Odor Threshold

No data available

рН

1 (77 °F / 25 °C)

Melting point/range

No data available

Boiling point/boiling range

230 °F / 110 °C (1,013 hPa)

Flash point

Not applicable

Evaporation rate

No data available

Flammability (solid, gas)

Not applicable

Self-ignition

Not applicable

Upper explosion limit / Upper

flammability limit

No data available

Lower explosion limit / Lower

flammability limit

No data available

SAFETY DATA SHEET

complies with OSHA Hazard Communication Standard 29 CFR 1910.1200

Palladium Nitrate sol. L508P 2230

Version

Revision Date:

10.0 02/03/2023

Date of last issue: 12/09/2022 Date of first issue: 12/13/2016

Vapor pressure

No data available

Relative vapor density

No data available

Relative density

No data available

Density

1.55 g/cm3 (73 °F / 23 °C, 1,013 hPa)

Solubility(ies)

Water solubility

No data available

Solubility in other solvents

No data available

Partition coefficient: n-

Not applicable

octanol/water

Autoignition temperature

No data available

Decomposition temperature

No data available

Viscosity

Viscosity, dynamic

No data available

Viscosity, kinematic

No data available

Explosive properties

No data available

Oxidizing properties

The substance or mixture is not classified as oxidizing.

Particle size

Not applicable

SECTION 10. STABILITY AND REACTIVITY

Reactivity

No dangerous reaction known under conditions of normal use.

Chemical stability

Stable under normal conditions.

No dangerous reaction known under conditions of normal use.

Possibility of hazardous reactions

Conditions to avoid

No data available

Incompatible materials

No data available

Hazardous decomposition

No data available

products

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Harmful if swallowed.

SAFETY DATA SHEET

complies with OSHA Hazard Communication Standard 29 CFR 1910.1200

Palladium Nitrate sol. L508P 2230

Version 10.0 Revision Date: 02/03/2023

Date of last issue: 12/09/2022 Date of first issue: 12/13/2016

Product:

Acute oral toxicity

: Acute toxicity estimate: 1,283 mg/kg

Method: Calculation method

Acute inhalation toxicity

Assessment: The substance/mixture is not toxic on inhalation

as defined by dangerous goods regulations.

Acute toxicity estimate: 27.27 mg/l

Exposure time: 4 h
Test atmosphere: vapor
Method: Calculation method

Components:

Palladium dinitrate:

Acute oral toxicity

LD50 Oral (Rat): 200 - 2,000 mg/kg

Nitric acid:

Acute inhalation toxicity

: LC50 (Rat): > 2.65 mg/l

Exposure time: 4 h
Test atmosphere: vapor

Method: OECD Test Guideline 403

Assessment: Corrosive to the respiratory tract.

Skin corrosion/irritation

Causes severe burns.

Components:

Nitric acid:

Result Remarks Corrosive after 3 minutes or less of exposure

Based on national or regional regulation.

Serious eye damage/eye irritation

Causes serious eye damage.

Components:

Nitric acid:

Result

Irreversible effects on the eye

Remarks

Based on skin corrosivity.

SAFETY DATA SHEET

complies with OSHA Hazard Communication Standard 29 CFR 1910.1200

Palladium Nitrate sol. L508P

2230

Version 10.0 Revision Date:

02/03/2023

Date of last issue: 12/09/2022 Date of first issue: 12/13/2016

Respiratory or skin sensitization

Skin sensitization

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Germ cell mutagenicity

Not classified based on available information.

Components:

Nitric acid:

Genotoxicity in vitro

Test Type: Bacterial reverse mutation assay (AMES)

Result: negative

Genotoxicity in vivo

Test Type: Unscheduled DNA synthesis test (UDS) in testicu-

lar cells

Species: Mouse

Application Route: Ingestion

Result: negative

Remarks: Based on data from similar materials

Carcinogenicity

Not classified based on available information.

Components:

Nitric acid:

Species

Rat

Application Route

Ingestion

Exposure time

273 days

Result

negative

Remarks

Based on data from similar materials

IARC

No ingredient of this product present at levels greater than or equal to 0.1% is

identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No component of this product present at levels greater than or equal to 0.1% is

on OSHA's list of regulated carcinogens.

NTP

No ingredient of this product present at levels greater than or equal to 0.1% is

identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Not classified based on available information.

SAFETY DATA SHEET

complies with OSHA Hazard Communication Standard 29 CFR 1910.1200

Palladium Nitrate sol. L508P

2230

Version 10.0 Revision Date: 02/03/2023

Date of last issue: 12/09/2022 Date of first issue: 12/13/2016

Components:

Nitric acid:

Effects on fertility

Test Type: Combined repeated dose toxicity study with the

reproduction/developmental toxicity screening test

Species: Rat

Application Route: Ingestion
Method: OECD Test Guideline 422

Result: negative

Remarks: Based on data from similar materials

Effects on fetal development :

Test Type: Combined repeated dose toxicity study with the

reproduction/developmental toxicity screening test

Species: Rat

Application Route: Ingestion

Method: OECD Test Guideline 422

Result: negative

Remarks: Based on data from similar materials

STOT-single exposure

Not classified based on available information.

STOT-repeated exposure

Not classified based on available information.

Aspiration toxicity

Not classified based on available information.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Palladium dinitrate:

Toxicity to fish

: LC50: 116 mg/l

Exposure time: 96 h

Toxicity to algae/aquatic

plants

EC50: 0.064 mg/l

Exposure time: 72 h

M-Factor (Acute aquatic tox-

icity)

M-Factor (Chronic aquatic

10

toxicity)

Nitric acid:

SAFETY DATA SHEET

complies with OSHA Hazard Communication Standard 29 CFR 1910.1200

Palladium Nitrate sol. L508P

2230

Version 10.0

Revision Date:

02/03/2023

Date of last issue: 12/09/2022

Date of first issue: 12/13/2016

Toxicity to fish

LC50 (Oncorhynchus mykiss (rainbow trout)): 6,000 mg/l

Exposure time: 96 h

Remarks: Based on data from similar materials

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 8,609 mg/l

Exposure time: 48 h

Remarks: Based on data from similar materials

Toxicity to fish (Chronic tox-

icity)

NOEC: 97.8 mg/l

Exposure time: 3 Months

Remarks: Based on data from similar materials

Toxicity to microorganisms

: EC50: > 1,000 mg/l Exposure time: 3 h

Remarks: Based on data from similar materials

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

Product:

Ozone-Depletion Potential

Regulation: 40 CFR Protection of Environment; Part 82 Pro-

tection 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).

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues

If recycling is not practicable, dispose of in compliance with

local regulations.

Contaminated packaging

Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

International Regulations

complies with OSHA Hazard Communication Standard 29 CFR 1910.1200

Palladium Nitrate sol. L508P

2230

Version 10.0

Revision Date:

02/03/2023

Date of last issue: 12/09/2022 Date of first issue: 12/13/2016

UNRTDG

UN number

UN 3264

Proper shipping name

CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.

(Nitric acid, palladium dinitrate)

Class

8

Packing group

Ш

Labels

8

IATA-DGR

UN/ID No.

UN 3264

Proper shipping name

Corrosive liquid, acidic, inorganic, n.o.s.

(Nitric acid, palladium dinitrate)

Class

Packing group

8 11

Labels

Corrosive

Packing instruction (cargo

855

aircraft)

Packing instruction (passen-

851

ger aircraft)

IMDG-Code

UN number

UN 3264

Proper shipping name

CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.

(Nitric acid, palladium dinitrate)

Class

Packing group

Ш

Labels

8

EmS Code

F-A, S-B

Marine pollutant

yes

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

Not applicable for product as supplied.

Domestic regulation

DOT

UN/ID/NA number

UN 3264

Proper shipping name

Corrosive liquid, acidic, inorganic, n.o.s.

(Nitric acid, palladium dinitrate)

Class

8

Packing group

II

Labels

CORROSIVE

ERG Code

154

Marine pollutant

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

SAFETY DATA SHEET

complies with OSHA Hazard Communication Standard 29 CFR 1910.1200

Palladium Nitrate sol. L508P

2230

Version 10.0

Revision Date: 02/03/2023

Date of last issue: 12/09/2022 Date of first issue: 12/13/2016

Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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

Listed substances in the product are at low enough levels to not be expected to exceed the RQ

SARA 304 Extremely Hazardous Substances Reportable Quantity

Listed substances in the product are at low enough levels to not be expected to exceed the RQ

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

•		_	•		
Components	CAS-No.	Con	nponent TPQ (lbs)		
Nitric acid	7697-37-2		1000		
SARA 311/312 Hazards	Acute toxicity (Skin corrosion	Corrosive to Metals Acute toxicity (any route of exposure) Skin corrosion or irritation Serious eye damage or eye irritation			
SARA 313		The following components are subject to reporting levels established by SARA Title III, Section 313:			
	Nitric acid	7697-37-2	>= 10 - < 20 %		

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).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

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

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

Nitric acid

7697-37-2

>= 10 - < 20 %

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:



complies with OSHA Hazard Communication Standard 29 CFR 1910.1200

Palladium Nitrate sol. L508P 2230

Version 10.0

Revision Date: 02/03/2023

Date of last issue: 12/09/2022 Date of first issue: 12/13/2016

Nitric acid

7697-37-2

>= 10 - < 20 %

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

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

US State Regulations

Massachusetts Right To Know

Nitric acid

7697-37-2

Pennsylvania Right To Know

Water Palladium dinitrate Nitric acid

7732-18-5 10102-05-3 7697-37-2

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

California List of Hazardous Substances

Nitric acid

California Permissible Exposure Limits for Chemical Contaminants

7697-37-2 Nitric acid

California List of Acutely Hazardous Chemicals, Toxics and Reactives

7697-37-2

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.

Other regulations

Storage class (TRGS 510) : 8B: Non-combustible, corrosive hazardous materials

SAFETY DATA SHEET

complies with OSHA Hazard Communication Standard 29 CFR 1910.1200

Palladium Nitrate sol. L508P 2230

Version

Revision Date:

10.0 02/03/2023

Date of last issue: 12/09/2022 Date of first issue: 12/13/2016

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

ACGIH NIOSH REL : USA. ACGIH Threshold Limit Values (TLV)

NIUSH KEL

USA. NIOSH Recommended Exposure Limits

OSHA Z-1

USA. Occupational Exposure Limits (OSHA) - Table Z-1 Lim-

its for Air Contaminants

ACGIH / TWA

8-hour, time-weighted average

ACGIH / STEL

Short-term exposure limit

NIOSH REL / TWA

Time-weighted average concentration for up to a 10-hour

workday during a 40-hour workweek

NIOSH REL / ST

STEL - 15-minute TWA exposure that should not be exceeded

at any time during a workday

OSHA Z-1 / TWA

: 8-hour time weighted average

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

SAFETY DATA SHEET

complies with OSHA Hazard Communication Standard 29 CFR 1910.1200

Palladium Nitrate sol. L508P 2230

Version 10.0 Revision Date: 02/03/2023

Date of last issue: 12/09/2022 Date of first issue: 12/13/2016

(United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Revision Date

: 02/03/2023

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

US/Z8