SAFETY DATA SHEET

US OSHA Hazard Communication Standard (29 CFR 1910.1200) and Canada WHMIS 2015 which includes the amended Hazardous Products Act (HPA) and the Hazardous Products Regulation (HPR)

Revision Date 08-Dec-2025

1. Identification

Product identifier

Product Name Ramset and Tapcon Powder Loads 0.22, 0.25, 0.27 Caliber

Other means of identification

Product Code 22CW, 32CW, 42CW, 3RS25-5RS25, 3RS27-6RS27

UN number or ID number UN0014 or UN0323

Recommended use of the chemical and restrictions on use

Recommended Use Fastening. Use as intended with Ramset and Tapcon powder actuated tools.

Restrictions on use Uses other than recommended use.

Details of the supplier of the safety data sheet

Supplier Address
ITW Commercial Construction NA
ITW Mechanical Fastening
155 Harlem Avenue
Glenview, IL 60025

Manufacturer Address
ITW Commercial Construction NA
ITW Mechanical Fastening
155 Harlem Avenue
Glenview, IL 60025

May Also Be Distributed by:
ITW Construction Products Canada
120 Travail Road
Markham, Ontario L3S 3J1
1-800-387-9692

E-mail address techsupport@itwccna.com

Emergency telephone number

Company Phone Number 1-800-848-5611

24 Hour Emergency Phone Number CHEMTREC: 1-800-424-9300 or 1-703-527-3887.

2. Hazard(s) identification

Classification of the substance or mixture

Explosives	Division 1.4
Carcinogenicity	Category 1A
Reproductive toxicity	Category 1A
Effects on or via lactation	Yes
Specific target organ toxicity (repeated exposure)	Category 1

Label elements

Danger
Hazard statements

Fire or projection hazard.
May cause cancer.
May damage fertility or the unborn child.
May cause harm to breast-fed children.
Causes damage to organs through prolonged or repeated exposure.

Precautionary Statements - Prevention
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust, fume, gas, mist, vapors and spray.
Wash face, hands and any exposed skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Keep only in original packaging.
Ground and bond container and receiving equipment.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
Do not subject to grinding, shock and friction.
KEEP OUT OF REACH OF CHILDREN AND PETS.
Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention.
Fire
In case of fire: Explosion risk. Evacuate area. DO NOT fight fire when fire reaches explosives.

Precautionary Statements - Storage
Store locked up.
Store in accordance with local, regional, national, and international regulations as applicable.
Precautionary Statements - Disposal
Dispose of contents and container in accordance with local, regional, national, and international regulations as applicable.

Hazards classified under paragraph (d)(1)(ii) of 1910.1200
None.

Other Information
Toxic to aquatic life with long lasting effects.
Health Hazards or Risks From Exposure:This product is composed of a finished metal alloy cartridge which contains the various components completely sealed within. Therefore, under normal handling of this product, no exposure to any harmful materials will occur. When the product is fired, a small amount of particles may be generated which may be slightly irritating to the eyes and the respiratory tract. The particles may contain trace amounts of these harmful substances: Lead: Ingestion of large amounts of lead can cause abdominal pain, constipation, cramps, nausea and/or vomiting. Chronic exposure to lead can cause kidney damage, anemia, reproductive effects, developmental effects and permanent nervous system damage in humans including changes in cognitive function. Occupational exposure to lead is associated with lung and stomach cancer. Lead is classified as a probable human carcinogen. Nitroglycerin: Will produce dilation of blood vessels and drop in blood pressure which may affect the heart. It has also been shown to cause methemoglobinemia (cyanosis). Copper: Inhalation of high concentrations of metallic copper dusts or fumes may cause nasal irritation and/or nausea, vomiting and stomach pain. It is unlikely that the amount of particles that someone would be exposed to from firing would be sufficient to cause any of these effects..

3. Composition/information on ingredients

Substance

Chemical name	CAS No.	Weight-%	**Hazardous Material Information Review Act registry number (HMIRA registry #)**	**Date HMIRA filed and date exemption granted (if applicable)**
Zinc	7440-66-6	0-32%	-	-
Iron	7439-89-6	0-97%	-	-
Copper	7440-50-8	0-65%	-	-

Nitrocellulose	9004-70-0	2-13%	-	-
Nitroglycerin	55-63-0	0.5-2%	-	-
Lead Styphnate	15245-44-0	0.1-1%	-	-

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. First-aid measures

Description of first aid measures

Inhalation IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. If breathing has stopped, give artificial respiration. Get medical attention immediately.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact Wash skin with soap and water.

Ingestion If swallowed, call a poison control center or physician immediately.

Most important symptoms and effects, both acute and delayed

Symptoms See section 2 for more information.

Effects of Exposure Coughing and/ or wheezing. Difficulty in breathing.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. Fire-fighting measures

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

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical Fire or projection hazard.

Explosion data

Sensitivity to mechanical impact Yes.

Sensitivity to static discharge May be ignited by friction, heat, sparks or flames.

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

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation.

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 Pick up and transfer to properly labeled containers.

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

7. Handling and storage

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Do not smoke. Wash thoroughly after handling. Take off contaminated clothing and wash before reuse.

Conditions for safe storage, including any incompatibilities

Storage Conditions Store in accordance with local regulations. Store in a cool, dry area away from potential sources of heat, open flames, sunlight or other chemicals. Keep out of the reach of children.

8. Exposure controls/personal protection

Control Parameters

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

Chemical name	ACGIH TLV	OSHA PEL	NIOSH
Copper 7440-50-8	TWA: 0.2 mg/m³ fume	TWA: 0.1 mg/m³ fume TWA: 1 mg/m³ dust and mist (vacated) TWA: 0.1 mg/m³ Cu dust, fume, mist	TWA: 1 mg/m³; dust and mist TWA: 0.1 mg/m³; fume IDLH: 100 mg/m³ dust, fume and mist
Nitroglycerin 55-63-0	TWA: 0.05 ppm pSk	(vacated) STEL: 0.1 mg/m³ not in effect as a result of reconsideration Ceiling: 0.2 ppm Ceiling: 2 mg/m³ dSk Sdv	STEL: 0.1 mg/m³ IDLH: 75 mg/m³
Lead Styphnate 15245-44-0	-	-	TWA: 0.050 mg/m³; Pb IDLH: 100 mg/m³ Pb

Chemical name	Alberta	British Columbia	Ontario	Quebec
Copper 7440-50-8	TWA: 0.2 mg/m³; fume TWA: 1 mg/m³; dust and mist	TWA: 1 mg/m³; dust and mist TWA: 0.2 mg/m³; fume	TWA: 0.2 mg/m³; fume TWA: 1 mg/m³; dust and mist	TWAEV: 0.2 mg/m³; fume TWAEV: 1 mg/m³; dust and mist
Nitroglycerin 55-63-0	TWA: 0.05 ppm; TWA: 0.5 mg/m³; pSk	TWA: 0.05 ppm; Sk	TWA: 0.05 ppm; dSk	TWAEV: 0.05 ppm; Sd
Lead Styphnate 15245-44-0	-	-	TWA: 0.05 mg/m³; dSk	-

Chemical name	Manitoba	New Brunswick	Newfoundland and Labrador	Nova Scotia
Copper	TWA: 0.2 mg/m³; fume	TWA: 0.2 mg/m³; fume	TWA: 0.2 mg/m³; fume	TWA: 0.2 mg/m³; fume
Nitroglycerin	TWA: 0.05 ppm; pSk	TWA: 0.05 ppm; pSk	TWA: 0.05 ppm; pSk	TWA: 0.05 ppm; pSk

Chemical name	Nunavut	Prince Edward Island	Saskatchewan	Yukon
Copper	TWA: 0.2 mg/m³; fume TWA: 1 mg/m³; dust and mist STEL: 3 mg/m³; dust and mist STEL: 0.6 mg/m³; fume	TWA: 0.2 mg/m³; fume	TWA: 0.2 mg/m³; fume TWA: 1 mg/m³; dust and mist STEL: 0.6 mg/m³; fume STEL: 3 mg/m³; dust and mist	TWA: 0.2 mg/m³; fume TWA: 1 mg/m³; dust and mist STEL: 0.2 mg/m³; fume STEL: 2 mg/m³; dust and mist
Nitroglycerin	TWA: 0.05 ppm; STEL: 0.15 ppm; Sk	TWA: 0.05 ppm;	TWA: 0.05 ppm; STEL: 0.15 ppm; pSd	TWA: 0.2 ppm; TWA: 2 mg/m³; STEL: 0.2 ppm; STEL: 2 mg/m³; Ceiling: 0.2 ppm; Sk

Appropriate engineering controls

Engineering controls

Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection

Appropriate eye/face protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction.

Hand protection

Appropriate hand protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction.

Skin and body protection

Appropriate skin and body protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction.

Respiratory protection

Appropriate respiratory protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Environmental exposure controls

Avoid release to the environment.

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Solid
Appearance	Cylindrical brass or steel cartridge.
Color	Gold / Silver
Odor	No Data Available
Odor threshold	No Data Available

Property	Values	Remarks • Method
Melting point / freezing point	>900 °C	None known
Boiling point (or initial boiling point or boiling range)	>1900 °C	None known
Flammability (solid, gas)	Ignitable	None known
Flammability Limit in Air		None known
Upper flammability limit:	No data available	
Lower flammability limit:	No data available	
Flash point	No data available	None known
Autoignition temperature	>200 °C	None known
Decomposition temperature	No data available	None known
SADT (°C)	No data available	None known
pH	No data available	None known
pH (as aqueous solution)	No data available	None known
Kinematic viscosity	No Data Available	None known
Dynamic viscosity	No data available	None known
Solubility	Insoluble	None known
Water solubility	No data available	None known
Partition coefficient n-octanol/water (log value)	No Data Available	None known
Vapor pressure (includes evaporation rate)	No Data Available	None known
Evaporation rate	No data available	None known
Density and/or relative density	>1	None known
Bulk density	No data available	
Density	No data available	
Vapor density	No data available	None known
Particle characteristics		None known
Particle Size	No data available	
Particle Size Distribution	No data available	

Other information

Explosive properties	Fire or projection hazard
Oxidizing properties	No information available
Softening point	No information available
Molecular weight	No information available
VOC content	No information available
Density	No information available
Bulk density	No information available

10. Stability and reactivity

Reactivity	Stable under normal conditions.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	None under normal processing.
Hazardous polymerization	Hazardous polymerization does not occur.
Conditions to avoid	Incompatible materials. Do not add to hot materials; do not grind or subject to heat or shock - explosive decomposition may result.
Incompatible materials	Incompatible with oxidizing agents, caustic, Acids, Bases, Explosives.
Hazardous decomposition products	Nitrogen oxides (NOx), Carbon monoxide, Carbon dioxide (CO2), Lead compounds.

11. Toxicological information

Information on likely routes of exposure

Inhalation Specific test data for the substance or mixture is not available.

Eye contact Specific test data for the substance or mixture is not available.

Skin contact Specific test data for the substance or mixture is not available.

Ingestion Specific test data for the substance or mixture is not available.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Coughing and/ or wheezing. Difficulty in breathing.

Acute toxicity .

Numerical measures of toxicity
No information available

The following ATE values have been calculated for the mixture

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Zinc 7440-66-6	= 630 mg/kg (Rat)	-	-
Iron 7439-89-6	= 30 g/kg (Rat)	-	-
Copper 7440-50-8	-	-	> 5.11 mg/L (Rat) 4 h
Nitrocellulose 9004-70-0	> 5 g/kg (Rat)	-	-
Nitroglycerin 55-63-0	= 100 mg/kg (Rat)	> 9560 mg/kg (Rat)	-
Lead Styphnate 15245-44-0	-	> 2000 mg/kg (Rat)	> 5.05 mg/L (Rat) 4 h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation Based on available data, the classification criteria are not met.

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

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

Carcinogenicity Contains a known or suspected carcinogen. May cause cancer.

Chemical name	ACGIH	IARC	NTP	OSHA
Nitrocellulose 9004-70-0	-	Group 2A - Probably carcinogenic to humans	-	Present

Nitroglycerin 55-63-0	-	Group 2A - Probably carcinogenic to humans	-	Present
Lead Styphnate 15245-44-0	-	Group 2A - Probably carcinogenic to humans	Reasonably Anticipated To Be A Human Carcinogen	Present

ACGIH (American Conference of Governmental Industrial Hygienists)
A1 - Known Human Carcinogen
A2 - Suspected human carcinogen
A3 - Animal Carcinogen
A4 - Not classifiable as a human carcinogen
IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to humans
Group 2A - Probably carcinogenic to humans
Group 2B - Possibly carcinogenic to humans
Group 3 - Not classifiable as to carcinogenicity in humans
NTP (National Toxicology Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen
Occupational Safety and Health Administration of the US Department of Labor
X - Present

Reproductive toxicity May damage fertility. May damage the unborn child.

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

STOT - repeated exposure H372 - Causes damage to the kidneys/ liver/ eyes/ brain/ respiratory system/ central nervous system through prolonged or repeated exposure.

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

12. Ecological information

Ecotoxicity Toxic to aquatic life with long lasting effects.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Zinc 7440-66-6	EC50: 0.11 - 0.271mg/L (96h, Pseudokirchneriella subcapitata) EC50: 0.09 - 0.125mg/L (72h, Pseudokirchneriella subcapitata)	LC50: 2.16 - 3.05mg/L (96h, Pimephales promelas) LC50: 0.211 - 0.269mg/L (96h, Pimephales promelas) LC50: =2.66mg/L (96h, Pimephales promelas) LC50: =30mg/L (96h, Cyprinus carpio) LC50: =0.45mg/L (96h, Cyprinus carpio) LC50: =7.8mg/L (96h, Cyprinus carpio) LC50: =3.5mg/L (96h, Lepomis macrochirus) LC50: =0.24mg/L (96h, Oncorhynchus mykiss)	-	EC50: 0.139 - 0.908mg/L (48h, Daphnia magna)

		LC50: =0.59mg/L (96h, Oncorhynchus mykiss) LC50: =0.41mg/L (96h, Oncorhynchus mykiss)		
Copper 7440-50-8	EC50: 0.0426 - 0.0535mg/L (72h, Pseudokirchneriella subcapitata) EC50: 0.031 - 0.054mg/L (96h, Pseudokirchneriella subcapitata)	LC50: 0.0068 - 0.0156mg/L (96h, Pimephales promelas) LC50: <0.3mg/L (96h, Pimephales promelas) LC50: =0.2mg/L (96h, Pimephales promelas) LC50: =0.052mg/L (96h, Oncorhynchus mykiss) LC50: =1.25mg/L (96h, Lepomis macrochirus) LC50: =0.3mg/L (96h, Cyprinus carpio) LC50: =0.8mg/L (96h, Cyprinus carpio) LC50: =0.112mg/L (96h, Poecilia reticulata)	-	EC50: =0.03mg/L (48h, Daphnia magna)
Nitroglycerin 55-63-0	-	LC50: 0.87 - 3.25mg/L (96h, Lepomis macrochirus) LC50: 0.87 - 2.21mg/L (96h, Lepomis macrochirus) LC50: 2 - 3.8mg/L (96h, Oncorhynchus mykiss) LC50: 1.6 - 2.6mg/L (96h, Pimephales promelas) LC50: 2.2 - 3.7mg/L (96h, Pimephales promelas)	-	EC50: 46 - 55mg/L (48h, Daphnia magna) EC50: 38 - 55mg/L (48h, Daphnia magna)

Persistence and degradability There is no data for this product.

Bioaccumulation There is no data for this product.

Chemical name	Partition coefficient
Lead Styphnate 15245-44-0	-2.19

Other adverse effects Keep out of drains, sewers, ditches and waterways.

13. Disposal considerations

Waste treatment 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.

US EPA Waste Number D008, D005, P081.

14. Transport information

NOTE: Additional Information: U.S. DEPARTMENT OF TRANSPORTATION SHIPPING REGULATIONS: This product is classified as dangerous goods under 49 CFR 172.101. Note: May be reclassified domestically as a Limited Quantity if packaged in accordance with 49 CFR 173.63.

DOT Regulated

UN number or ID number	UN0014 or UN0323
Proper shipping name	Cartridges for Tools, Blank or Cartridges, Power Device
Transport hazard class(es)	1.4S
Packing group	II
DOT Marine Pollutant	NP

TDG Regulated

UN number or ID number	UN0014 or UN0323
UN proper shipping name	Cartridges for Tools, Blank or Cartridges, Power Device
Transport hazard class(es)	1.4S
Packing group	II
Marine pollutant name	NP.

MEX Regulated

UN number or ID number	UN0014 or UN0323
UN proper shipping name	Cartridges for Tools, Blank or Cartridges, Power Device
Transport hazard class(es)	1.4S
Packing group	II

ICAO (air) Regulated

UN number or ID number	UN0014 or UN0323
UN proper shipping name	Cartridges for Tools, Blank or Cartridges, Power Device
Transport hazard class(es)	1.4S
Packing group	II

IATA Regulated

UN number or ID number	UN0014 or UN0323
UN proper shipping name	Cartridges for Tools, Blank or Cartridges, Power Device
Transport hazard class(es)	1.4S
Packing group	II

IMDG Regulated

UN number or ID number	UN0014 or UN0323
UN proper shipping name	Cartridges for Tools, Blank or Cartridges, Power Device
Transport hazard class(es)	1.4S
Packing group	II
Marine pollutant	NP

15. Regulatory information

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

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

International Inventories

TSCA	Complies.
DSL/NDSL	Complies.

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Zinc 7440-66-6	-	X	X	-
Copper 7440-50-8	-	X	X	-
Lead Styphnate 15245-44-0	-	X	-	-

CAA (Clean Air Act)
This product does not contain any substances regulated as pollutants pursuant to Clean Air Act (CAA).

Chemical name	Hazardous air pollutants (HAPs)	Ozone-depleting substances (ODS)
Lead Styphnate 15245-44-0	Present	-

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	Reportable Quantity (RQ)
Zinc 7440-66-6	1000 lb / kg (final RQ)	-	RQ 454 kg final RQ RQ 1000 lb final RQ
Copper 7440-50-8	5000 lb / kg (final RQ)	-	RQ 5000 lb final RQ RQ 2270 kg final RQ
Nitroglycerin	10 lb /	-	RQ 10 lb final RQ

55-63-0	kg (final RQ)		RQ 4.54 kg final RQ

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals:.

Chemical name	California Proposition 65
Lead Styphnate - 15245-44-0	Carcinogen

U.S. State Right-to-Know Regulations

This product does not contain any substances regulated under applicable state right-to-know regulations

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. Other information

NFPA	**Health hazards** 2	**Flammability** 1	**Instability** 2	**Special hazards** -
HMIS	**Health hazards** 4*	**Flammability** 1	**Physical hazards** 2	**Personal protection** A

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

Legend

ACGIH	American Conference of Governmental Industrial Hygienists
ADN	Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Europe)
ADR	Agreement concerning the International Carriage of Dangerous Goods by Road (Europe)
AIIC	Australian Inventory of Industrial Chemicals
ATE	Acute Toxicity Estimate
ASTM	American Society for the Testing of Materials
bar	Biological Reference Values for Chemical Compounds in the Work Area
BAT	Biological tolerance values for occupational exposure
BEL	Biological exposure limits
bw	Body weight
Ceiling	Maximum limit value
CMR	Carcinogen, Mutagen or Reproductive Toxicant
DOT	Department of Transportation (United States)
DSL	Domestic Substances List (Canada)
EmS	Emergency Schedule
ENCS	Existing and New Chemical Substances (Japan)
EPA	U.S. Environmental Protection Agency
GHS	Globally Harmonized System
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
ICAO	International Civil Aviation Organization
IECSC	Inventory of Existing Chemical Substances in China
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
ISO	International Organization for Standardization
KECI	Korean 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
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
n.o.s.	Not Otherwise Specified

NOAEC	No Observed Adverse Effect Concentration
NOAEL	No Observed Adverse Effect Level
NOELR	No Observable Effect Loading Rate
NTP	National Toxicology Program (United States)
NZIoC	New Zealand Inventory of Chemicals
OECD	Organization for Economic Cooperation and Development
OEL	Occupational exposure limits
OSHA	Occupational Safety and Health Administration of the US Department of Labor
PBT	Persistent, Bioaccumulative and Toxic substance
PICCS	Philippines Inventory of Chemicals and Chemical Substances
PMT	Persistent, Mobile and Toxic
PPE	Personal protective equipment
QSAR	Quantitative Structure Activity Relationship
RID	Agreement concerning the International Carriage of Dangerous Goods by Rail (Europe)
SADT	Self-Accelerating Decomposition Temperature
SAR	Structure-activity relationship
SARA	Superfund Amendments and Reauthorization Act
SDS	Safety Data Sheet
SL	Surface Limit
STEL	Short Term Exposure Limit
STOT RE	Specific target organ toxicity - Repeated exposure
STOT SE	Specific target organ toxicity - Single exposure
TCSI	Taiwan Chemical Substance Inventory
TDG	Transport of Dangerous Goods (Canada)
TSCA	Toxic Substances Control Act (United States)
TWA	Time-Weighted Average
UN	United Nations
VOC	Volatile organic compounds
vPvB	Very Persistent and Very Bioaccumulative
vPvM	Very Persistent and Very Mobile
Sen+	Sensitizer
Sk*	Skin designation
**	Hazard Designation

Key literature references and sources for data used to compile the SDS

U.S. Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
U.S. Environmental Protection Agency
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan National Institute of Technology and Evaluation (NITE)
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine’s PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
International Organization for Economic Co-operation and Development (OECD) Environment, Health, and Safety Publications
International Organization for Economic Co-operation and Development (OECD) High Production Volume Chemicals Program
International Organization for Economic Co-operation and Development (OECD) Screening Information Data Set
United Nations World Health Organization (WHO)

Prepared By Product Safety Department.
Issuing Date 28-Jun-2022

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Revision Note	GHS Revision 7.

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