SAFETY DATA SHEET

NOVAZONE® AS

Version	Revision Date:	Date of last issue: 03/12/2020
1.13	03/12/2020	Date of first issue: 06/28/2007

SECTION 1. IDENTIFICATION

Product identifier

Product name : NOVAZONE® AS

Other means of identification : NOVAZONE AS

Recommended use of the chemical and restrictions on use

Recommended use : Antioxidant
Polymer additive

Restrictions on use : For industrial use only.

Manufacturer or supplier's details

Supplier

Company : SI Group USA (USAA), LLC

Address : 4 Mountainview Terrace
Suite 200
Danbury, CT
United States of America (USA)
06810

E-mail address : msdsrequest@siigroup.com

Emergency telephone

Emergency Phone Number : +1 703-741-5970 (CHEMTREC/US)
+44 (0) 1235 239 670 (NCEC/EU)
0 512 8090 3042 (NRCC/CHINA)

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

Skin sensitization : Category 1

Carcinogenicity : Category 2

Reproductive toxicity : Category 2

GHS label elements

Hazard pictograms :

Signal Word : Warning

Hazard Statements : H317 May cause an allergic skin reaction.
H351 Suspected of causing cancer.
H361 Suspected of damaging fertility or the unborn child.

Precautionary Statements :

Prevention:

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P363 Wash contaminated clothing before reuse.

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 : Mixture

Hazardous ingredients

Chemical name	CAS-No.	Concentration (% w/w)
Derivatives, benzene-1,4-diamine, N,N'-mixed phenyl and tolyl	68953-84-4	>= 50 - < 70
N,N'-diphenyl-p-phenylenediamine	74-31-7	>= 20 - < 30
hydroquinone	123-31-9	>= 0.1 - < 1

aniline	62-53-3	>= 0.1 - < 1

The exact percentage concentrations of components are being withheld as a trade secret in accordance with paragraph (i) of §1910.120

SECTION 4. FIRST AID MEASURES

General advice	:	Move out of dangerous area. Consult a physician. Show this material safety data sheet to the doctor in attendance.
If inhaled	:	Move to fresh air in case of accidental inhalation of dust or fumes from overheating or combustion. If symptoms persist, call a physician.
In case of skin contact	:	Take off contaminated clothing and shoes immediately. Wash off with soap and water. If symptoms persist, call a physician.
In case of eye contact	:	If eye irritation persists, consult a specialist. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If swallowed	:	Clean mouth with water and drink afterwards plenty of water. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. Obtain medical attention.
Most important symptoms and effects, both acute and delayed	:	Product dust may be irritating to eyes, skin and respiratory system. May cause an allergic skin reaction. Suspected of causing cancer. Suspected of damaging fertility or the unborn child.
Notes to physician	:	The first aid procedure should be established in consultation with the doctor responsible for industrial medicine.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	:	High volume water jet
Specific hazards during fire fighting	:	Do not allow run-off from fire fighting to enter drains or water courses. Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous combustion products	:	No hazardous combustion products are known.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Special protective equipment for fire-fighters	:	Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment as required.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Non-sparking tools should be used. Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation. Keep in properly labeled containers. Dispose of rinse water as waste water.
Environmental precautions	:	Do not flush into surface water or sanitary sewer system. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion	:	Avoid dust formation.Provide appropriate exhaust ventilation at places where dust is formed.
Advice on safe handling	:	Minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations.

Keep away from heat and sources of ignition.

For personal protection see section 8.
Persons with a history of skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Smoking, eating and drinking should be prohibited in the application area.
Dispose of rinse water in accordance with local and national regulations.

Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.

Materials to avoid : No special restrictions on storage with other products.

Further information on storage stability : No decomposition if stored and applied as directed.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
aniline	62-53-3	p-Aminophenol	Urine	End of shift (As soon as possible after exposure ceases)	50 mg/l	ACGIH BEIACGIH - Biological Exposure Indices (BEI)

Engineering measures : It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen deficient environment.
Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment).
Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If

exposure limits have not been established, maintain airborne levels to an acceptable level. Ensure adequate ventilation, especially in confined areas.

Dust formation may be relevant in the processing of this product. In addition to substance-specific OELs, general limitations of concentrations of particulates in the air at workplaces have to be considered in workplace risk assessment. Relevant limits include: OSHA PEL for Particulates Not Otherwise Regulated of 15 mg/m3 - total dust, 5 mg/m3 - respirable fraction; and ACGIH TWA for Particles (insoluble or poorly soluble) Not Otherwise Specified of 3 mg/m3 - respirable particles, 10 mg/m3 - inhalable particles.

Use mechanical ventilation for general area control.
Dust must be extracted directly at the point of origin.
Ensure that extracted air cannot be returned to the workplace through the ventilation system.

Personal protective equipment

Respiratory protection : If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.
In the absence of engineering controls sufficient to maintain airborne limit values, appropriate respiratory protection should be utilized.

Hand protection
Remarks : Polyvinyl alcohol or nitrile- butyl-rubber gloves Before removing gloves clean them with soap and water.

Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles

Skin and body protection : Dust impervious protective suit
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.
When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.

Environmental exposure controls

Water : Do not let product enter drains.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Pastilles, or, flakes
Color	:	gray to dark blue black
Odor	:	amine-like
Odor Threshold	:	No data available
pH	:	No data available
Melting point/range	:	89 - 105 °C / 89 - 105 °C Decomposition: no
Boiling point/boiling range	:	No data available
Flash point	:	232 °C / 232 °C
Evaporation rate	:	<Ether
Flammability (solid, gas)	:	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	:	Heavier than air
Relative density	:	1.2
Density	:	1.2 g/cm3
Bulk density	:	No data available
Solubility(ies) Water solubility	:	insoluble
Solubility in other solvents	:	partly soluble Solvent: Organic solvents

Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available
Surface tension	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Stable under recommended storage conditions.
Chemical stability	:	No decomposition if stored and applied as directed.
Possibility of hazardous reactions	:	Stable under recommended storage conditions. No decomposition if used as directed.
Conditions to avoid	:	No data available
Incompatible materials	:	Oxidizing agents Strong acids and strong bases
Hazardous decomposition products	:	This product may release the following: Carbon dioxide (CO2) Carbon monoxide Hydrocarbons

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Skin contact

Acute toxicity

Product:

Acute oral toxicity	:	Acute toxicity estimate: 3,189 mg/kg Method: Calculation method

Remarks: Not classified due to lack of data.

Acute inhalation toxicity : Remarks: Not classified due to lack of data.

Acute dermal toxicity : Acute toxicity estimate:3,817 mg/kg
Method: Calculation method

Components:

Derivatives, benzene-1,4-diamine, N,N'-mixed phenyl and tolyl:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg

Acute dermal toxicity : LD50 (Rat):> 2,000 mg/kg
Method: OECD Test Guideline 402
GLP: yes

aniline:

Acute oral toxicity : LD50 (Rat): 250 mg/kg

Acute inhalation toxicity : LC50 (Mouse): 175 mg/l

Acute dermal toxicity : LD50 (Rabbit):1,400 mg/kg

Skin corrosion/irritation

Product:

Species : Rabbit
Assessment : No skin irritation
Remarks : The product is not considered as being a skin irritant.

Components:

Derivatives, benzene-1,4-diamine, N,N'-mixed phenyl and tolyl:

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation
GLP : yes

aniline:

Species : Rabbit
Result : Moderate skin irritation

Serious eye damage/eye irritation

Product:

Remarks : The product is not considered as being an eye irritant.

Components:

aniline:

Species	:	Rabbit
Result	:	Moderate eye irritation

Respiratory or skin sensitization

Product:

Remarks	:	Causes sensitization.

Components:

Derivatives, benzene-1,4-diamine, N,N'-mixed phenyl and tolyl:

Test Type	:	Maximization Test
Species	:	Guinea pig
Assessment	:	May cause sensitization by skin contact.
Method	:	OECD Test Guideline 406
GLP	:	yes

Germ cell mutagenicity

Product:

Genotoxicity in vitro	:	Remarks: Not classified due to lack of data.
Genotoxicity in vivo	:	Remarks: Not classified due to lack of data.
Germ cell mutagenicity - Assessment	:	Not classified due to lack of data.

Components:

Derivatives, benzene-1,4-diamine, N,N'-mixed phenyl and tolyl:

Genotoxicity in vitro	:	Test Type: Ames test Metabolic activation: with and without metabolic activation Method: Mutagenicity (Escherichia coli - reverse mutation assay) Result: positive GLP: yes Test Type: Chromosome aberration test in vitro Metabolic activation: with and without metabolic activation Method: Mutagenicity (in vitro mammalian cytogenetic test) Result: negative GLP: yes Test Type: Unscheduled DNA synthesis (UDS) Result: positive

GLP: no

Genotoxicity in vivo : Test Type: In vivo micronucleus test
Species: Mouse (male and female)
Method: Mutagenicity (micronucleus test)
Result: negative
GLP: yes

Germ cell mutagenicity - Assessment : Animal testing did not show any mutagenic effects.

aniline:

Germ cell mutagenicity - Assessment : Not mutagenic in Ames Test., Experiments showed mutagenic effects in cultured bacterial cells.

Carcinogenicity

Product:

Carcinogenicity - Assessment : Suspected of causing cancer.

Components:

Derivatives, benzene-1,4-diamine, N,N'-mixed phenyl and tolyl:

Carcinogenicity - Assessment : Animal testing did not show any carcinogenic effects.

Reproductive toxicity

Product:

Reproductive toxicity - Assessment : Suspected of damaging fertility or the unborn child.

Components:

Derivatives, benzene-1,4-diamine, N,N'-mixed phenyl and tolyl:

Reproductive toxicity - Assessment : No toxicity to reproduction
No effects on or via lactation

aniline:

Reproductive toxicity - Assessment : Did not show teratogenic effects in animal experiments.

STOT-single exposure

Product:

Assessment : Not classified due to lack of data.

STOT-repeated exposure

Product:

Assessment : Not classified due to lack of data.

Components:

Derivatives, benzene-1,4-diamine, N,N'-mixed phenyl and tolyl:

Routes of exposure : Oral
Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Repeated dose toxicity

Product:

Remarks : Not classified due to lack of data.

Aspiration toxicity

Product:

No aspiration toxicity classification

Further information

Product:

Remarks : No data available

Components:

aniline:

Remarks : Ingredients of the product create formation of methaemoglobin.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish :
Remarks: No data is available on the product itself.

Toxicity to daphnia and other aquatic invertebrates :
Remarks: No data is available on the product itself.

Toxicity to algae/aquatic plants :
Remarks: No data is available on the product itself.

Toxicity to microorganisms : Remarks: No data is available on the product itself.

Components:

Derivatives, benzene-1,4-diamine, N,N'-mixed phenyl and tolyl:

Toxicity to fish : LC50 (Cyprinus carpio (Carp)): 0.43 mg/l
Test Type: flow-through test
GLP: yes

LC50 (Oncorhynchus mykiss (rainbow trout)): 0.48 mg/l
Exposure time: 96 h
Test Type: flow-through test
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1.8 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : EC50 (Algae): 0.018 mg/l
End point: Biomass
Exposure time: 72 h
Method: OECD Test Guideline 201
GLP: yes

M-Factor (Acute aquatic toxicity) : 10

Toxicity to fish (Chronic toxicity) : NOEC (Cyprinus carpio (Carp)): 0.28 mg/l
Exposure time: 14 d
GLP: yes

NOEC (Oncorhynchus mykiss (rainbow trout)): 0.140 mg/l
Exposure time: 14 d
GLP: yes

M-Factor (Chronic aquatic toxicity) : 10

aniline:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 134 mg/l
Exposure time: 96 h

LC50 (Oncorhynchus mykiss (rainbow trout)): 8.2 mg/l
Exposure time: 168 h

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 0.65 mg/l
Exposure time: 48 h

M-Factor (Acute aquatic toxicity) : 1

M-Factor (Chronic aquatic toxicity) : 1

Persistence and degradability

Product:

Biodegradability : Remarks: No data available

Components:

Derivatives, benzene-1,4-diamine, N,N'-mixed phenyl and tolyl:

Biodegradability : anaerobic
Inoculum: activated sludge
Result: According to the results of tests of biodegradability this product is not readily biodegradable.
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301
GLP: yes

Bioaccumulative potential

Product:

Bioaccumulation : Remarks: No data available

Components:

Derivatives, benzene-1,4-diamine, N,N'-mixed phenyl and tolyl:

Partition coefficient: n-octanol/water : log Pow: > 4.3 (22.8 °C / 22.8 °C)
GLP: yes

Mobility in soil

Product:

Mobility : Remarks: No data available

Other adverse effects

Product:

Results of PBT and vPvB assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

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).
Additional ecological information	:	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Offer surplus and non-recyclable solutions to a licensed disposal company.
Contaminated packaging	:	Empty remaining contents.Dispose of as unused product.Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

UN/ID No.	:	UN 3077
Proper shipping name	:	Environmentally hazardous substance, solid, n.o.s. (1,4-Benzenediamine, N,N'-mixed Ph and tolyl derivs.)
Class	:	9
Packing group	:	III
Labels	:	Class 9 - Miscellaneous Dangerous Goods
Packing instruction (cargo aircraft)	:	956
Packing instruction (passenger aircraft)	:	956
Environmentally hazardous	:	yes

IMDG-Code

UN number	:	UN 3077
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (1,4-Benzenediamine, N,N'-mixed Ph and tolyl derivs.)
Class	:	9
Packing group	:	III

Labels : 9
EmS Code : F-A,S-F
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

49 CFR

UN/ID/NA number : UN 3077
Proper shipping name : Environmentally hazardous substances, solid, n.o.s. (1,4-Benzenediamine, N,N'-mixed Ph and tolyl derivs.)
Class : 9
Packing group : III
Labels : Class 9 - Miscellaneous Dangerous Goods
ERG Code : 171
Marine pollutant : yes

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

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
hydroquinone	123-31-9	100	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
hydroquinone	123-31-9	100	*

*: Calculated RQ exceeds reasonably attainable upper limit.

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

Components	CAS-No.	Component TPQ (lbs)
hydroquinone	123-31-9	10000
hydroquinone	123-31-9	500
aniline	62-53-3	1000

SARA 311/312 Hazards : Acute Health Hazard
Chronic Health Hazard

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

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:

aniline	62-53-3	>= 0.1 - < 1 %

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

aniline	62-53-3	>= 0.1 - < 1 %

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

US State Regulations

Massachusetts Right To Know

hydroquinone	123-31-9
aniline	62-53-3
o-toluidine	95-53-4

Maine Chemicals of High Concern

o-toluidine	95-53-4

The following chemicals are listed as Maine Chemicals of High Concern:

California Prop. 65

WARNING! This product contains a chemical known in the State of California to cause cancer.

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

REACH	:	On the inventory, or in compliance with the inventory
TSCA	:	On TSCA Inventory
DSL	:	All components of this product are on the Canadian DSL
AICS	:	On the inventory, or in compliance with the inventory
NZIoC	:	On the inventory, or in compliance with the inventory
ENCS	:	On the inventory, or in compliance with the inventory

KECI	:	On the inventory, or in compliance with the inventory
PICCS	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory
ISHL	:	Not in compliance with the inventory
CH INV	:	The mixture contains substances listed on the Swiss Inventory, On the inventory, or in compliance with the inventory
TCSI	:	Not in compliance with the inventory

TSCA list

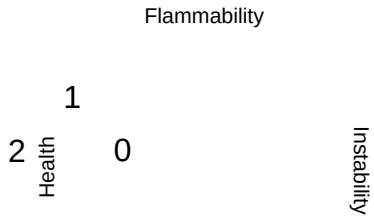
No substances are subject to a Significant New Use Rule.

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

SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV:

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; 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; 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

Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for safe handling.

Revision Date : 03/12/2020

The information and recommendations contained in this safety data sheet are, to the best of SI Group's knowledge, belief and experience, accurate and reliable as of the date of its publication and describe the product only with regard to safety requirements. It is the user's responsibility to confirm that it is using the most current available version of this safety data sheet. The information and recommendations herein are offered for the user's consideration and examination. Identified uses in this safety data sheet do neither represent an agreement on the quality of the Product nor a designated use. For the avoidance of doubt, nothing herein shall be construed as relieving the user of its responsibility to ensure that the product is suitable for the intended use and that any proprietary rights, existing laws and legislation are observed. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING THE PRODUCT DESCRIPTIONS, DATA OR INFORMATIN HEREIN. This safety data sheet is neither a Certificate of Analysis (CoA) nor a technical data sheet and shall not be mistaken for a description of the product's specifications. If user repackages this product, it is the user's responsibility to

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