

Santoflex(TM) 134PD

Version Revision Date: SDS Number: Date of last issue: 03/11/2019
2.1 04/12/2019 150000093091 Date of first issue: 09/06/2016
PRD SDSUS / Z8 / 0001

SECTION 1. IDENTIFICATION

Product name : Santoflex(TM) 134PD
Product code : 34054-00, P3405400, P3405402, P3405403, P3405404,
P3405407

Manufacturer or supplier's details

Company name of supplier : Eastman Chemical Company
Address : 200 South Wilcox Drive
Kingsport TN 37660-5280
Telephone : (423) 229-2000
Emergency telephone : CHEMTREC: +1-800-424-9300, +1-703-527-3887 CCN7321

Recommended use of the chemical and restrictions on use

Recommended use : antioxidant (industrial)
Restrictions on use : None known.

SECTION 2. HAZARDS IDENTIFICATION**GHS classification in accordance with 29 CFR 1910.1200**

Skin sensitization : Category 1
Reproductive toxicity : Category 1B

GHS label elements

Hazard pictograms : 

Signal Word : Danger
Hazard Statements : H317 May cause an allergic skin reaction.
H360 May damage 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.

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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**Components**

Chemical name	CAS-No.	Concentration (% w/w)
N-(1,4-Dimethylpentyl)-N'-phenylbenzene-1,4-diamine	3081-01-4	63 - 67
N-1,3-Dimethylbutyl-N'-phenyl-p-phenylenediamine	793-24-8	31 - 33

SECTION 4. FIRST AID MEASURES

- If inhaled : Move to fresh air.
Call a physician or poison control center immediately.
- In case of skin contact : Wash off with soap and plenty of water.
Wash contaminated clothing before re-use.
In the case of skin irritation or allergic reactions see a physician.
Thoroughly clean shoes before reuse.
- In case of eye contact : Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
- If swallowed : Seek medical advice.
- Most important symptoms and effects, both acute and delayed : May cause an allergic skin reaction.
May damage fertility or the unborn child.
- Notes to physician : Treat symptomatically.

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SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Carbon dioxide (CO2)
Dry chemical
Water spray
- Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.
Do NOT use water jet.
- Specific hazards during fire fighting : None known.
- Hazardous combustion products : No hazardous combustion products are known
- Further information : None known.
- Special protective equipment for fire-fighters : Wear an approved positive pressure self-contained breathing apparatus in addition to standard fire fighting gear.
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SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Wear appropriate personal protective equipment.
Local authorities should be advised if significant spillages cannot be contained.
- Environmental precautions : Avoid release to the environment.
- 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).
-

SECTION 7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : None known.
- Advice on safe handling : Do not breathe vapors or spray mist.
Do not get on skin or clothing.
Avoid contact with skin, eyes and clothing.
Do not swallow.
Use only with adequate ventilation.
Wash thoroughly after handling.
- Conditions for safe storage : Keep tightly closed.
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SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

Engineering measures : Good general ventilation (typically 10 air changes per hour) should be sufficient to control airborne levels.
Ensure adequate ventilation.

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.

Hand protection

Remarks : Wear suitable gloves.

Eye protection : Safety glasses

Protective measures : Remove respiratory and skin/eye protection only after vapors have been cleared from the area.
Ensure that eye flushing systems and safety showers are located close to the working place.
Use personal protective equipment as required.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : oily

Color : dark brown

Odor : aromatic

Odor Threshold : not determined

pH : not determined

Melting point/range : < -4 °F / -20 °C

Boiling point/boiling range : > 446 °F / 230 °C

Flash point : 392 °F / 200 °C

Method: Cleveland open cup

Evaporation rate : not determined

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Flammability (solid, gas)	:	Not applicable
Upper explosion limit / Upper flammability limit	:	not determined
Lower explosion limit / Lower flammability limit	:	not determined
Vapor pressure	:	not determined
Relative vapor density	:	not determined
Relative density	:	1.01 (59 °F / 15 °C)
Density	:	1 g/cm ³ (113 °F / 45 °C)
Solubility(ies)		
Water solubility	:	practically insoluble
Solubility in other solvents	:	Solvent: organic solvent Description: soluble
Partition coefficient: n-octanol/water	:	Not applicable
Autoignition temperature	:	not determined
Decomposition temperature	:	not determined
Viscosity		
Viscosity, dynamic	:	1,034 mPa.s (68 °F / 20 °C) 13 - 17 mPa.s (167 °F / 75 °C)
Viscosity, kinematic	:	not determined
Explosive properties	:	Not classified
Oxidizing properties	:	Not classified

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	None reasonably foreseeable.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Stable
Conditions to avoid	:	Heating in air.
Incompatible materials	:	Strong acids Strong oxidizing agents

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Hazardous decomposition products : Carbon dioxide (CO2)
Carbon monoxide

SECTION 11. TOXICOLOGICAL INFORMATION**Acute toxicity**

Not classified based on available information.

Product:

Acute oral toxicity : LD50 Oral (Rat, Male and Female): 2,420 mg/kg
Assessment: Not classified

Acute inhalation toxicity : LC0 (Rat, male): > 2.64 mg/l
Exposure time: 6 h
Assessment: Not classified

Acute dermal toxicity : LD50 Dermal (Rabbit, Male and Female): > 3,160 mg/kg
Assessment: Not classified

Components:**N-(1,4-Dimethylpentyl)-N'-phenylbenzene-1,4-diamine:**

Acute oral toxicity : LD50 Oral (Rat): 2,100 mg/kg

Acute dermal toxicity : LD50 Dermal (Rabbit): 5,010 mg/kg

N-1,3-Dimethylbutyl-N'-phenyl-p-phenylenediamine:

Acute oral toxicity : LD50 Oral (Rat): 893 mg/kg

Acute dermal toxicity : LD50 Dermal (Rabbit): > 7,940 mg/kg

Skin corrosion/irritation

Not classified based on available information.

Product:

Species : Rabbit

Exposure time : 24 h

Assessment : Not classified as hazardous.

Result : Non-irritating to the skin.

Components:**N-(1,4-Dimethylpentyl)-N'-phenylbenzene-1,4-diamine:**

Species : Rabbit

Exposure time : 24 h

Result : No skin irritation

N-1,3-Dimethylbutyl-N'-phenyl-p-phenylenediamine:

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Species : Rabbit
Exposure time : 72 h
Result : No skin irritation

Serious eye damage/eye irritation

Not classified based on available information.

Product:

Species : Rabbit
Exposure time : 24 h
Assessment : Not classified

Components:**N-(1,4-Dimethylpentyl)-N'-phenylbenzene-1,4-diamine:**

Species : Rabbit
Result : No eye irritation

N-1,3-Dimethylbutyl-N'-phenyl-p-phenylenediamine:

Species : Rabbit
Result : slight
Exposure time : 72 h

Respiratory or skin sensitization**Skin sensitization**

May cause an allergic skin reaction.

Respiratory sensitization

Not classified based on available information.

Product:

Assessment : Skin sensitization

Remarks : May cause an allergic skin reaction.

Components:**N-(1,4-Dimethylpentyl)-N'-phenylbenzene-1,4-diamine:**

Test Type : Skin sensitization
Species : Guinea pig
Result : sensitizing
Remarks : Read-across from a similar material

N-1,3-Dimethylbutyl-N'-phenyl-p-phenylenediamine:

Test Type : Skin sensitization
Species : Guinea pig
Result : May cause sensitization by skin contact.

Test Type : Human experience
Result : May cause sensitization by skin contact.

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Germ cell mutagenicity

Not classified based on available information.

Components:**N-(1,4-Dimethylpentyl)-N'-phenylbenzene-1,4-diamine:**

Genotoxicity in vitro : Test Type: Mutagenicity - Bacterial
Metabolic activation: +/- activation
Method: Bacterial Reverse Mutation Assay
Result: negative

Test Type: Mutagenicity - Mammalian
Metabolic activation: +/- activation
Method: In vitro Mammalian Chromosome Aberration Test
Result: negative

Genotoxicity in vivo : Species: Rat
Method: Mammalian Bone Marrow Chromosome Aberration Test
Result: negative

N-1,3-Dimethylbutyl-N'-phenyl-p-phenylenediamine:

Genotoxicity in vitro : Test Type: Mutagenicity - Bacterial
Metabolic activation: +/- activation
Method: Bacterial Reverse Mutation Assay
Result: negative

Metabolic activation: +/- activation
Method: In vitro Mammalian Chromosome Aberration Test
Result: positive

Genotoxicity in vivo : Test Type: various
Species: Rat
Result: negative

Carcinogenicity

Not classified based on available information.

Product:

Remarks : This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

Components:**N-(1,4-Dimethylpentyl)-N'-phenylbenzene-1,4-diamine:**

Remarks : Based on available data, the classification criteria are not met.
Read-across from a similar material

N-1,3-Dimethylbutyl-N'-phenyl-p-phenylenediamine:

Species : Rat, Male and Female

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Application Route : Ingestion
Method : OECD Test Guideline 451
Remarks : Based on available data, the classification criteria are not met.

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

May damage fertility or the unborn child.

Product:

Effects on fertility : Remarks: No data available

Components:**N-1,3-Dimethylbutyl-N'-phenyl-p-phenylenediamine:**

Effects on fertility : Species: Rat
Application Route: Oral
General Toxicity Parent: NOAEL: 100 milligram per kilogram
General Toxicity F1: NOAEL: 100 milligram per kilogram
Method: OECD Test Guideline 421

STOT-single exposure

Not classified based on available information.

Product:

Remarks : No data available

Components:**N-(1,4-Dimethylpentyl)-N'-phenylbenzene-1,4-diamine:**

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

N-1,3-Dimethylbutyl-N'-phenyl-p-phenylenediamine:

Assessment : Not classified

STOT-repeated exposure

Not classified based on available information.

Product:

Remarks : No data available

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Components:**N-(1,4-Dimethylpentyl)-N'-phenylbenzene-1,4-diamine:**

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

N-1,3-Dimethylbutyl-N'-phenyl-p-phenylenediamine:

Assessment : Not classified

Repeated dose toxicity**Components:****N-(1,4-Dimethylpentyl)-N'-phenylbenzene-1,4-diamine:**

Species	: Rat, Male and Female
NOAEL	: 20 mg/kg
Application Route	: in feed
Exposure time	: 2 year
Remarks	: Read-across from a similar material

N-1,3-Dimethylbutyl-N'-phenyl-p-phenylenediamine:

Species	: Rat, male and female
NOAEL	: 20 mg/kg
Application Route	: by gavage
Exposure time	: 28 days

Species	: Rat, male and female
NOAEL	: 13.5 mg/kg
Application Route	: in feed
Exposure time	: 2 year

Aspiration toxicity

Not classified based on available information.

Product:

No aspiration toxicity classification

Information on likely routes of exposure**Product:**

Inhalation	: Remarks: None known.
Skin contact	: Remarks: May cause an allergic skin reaction.
Eye contact	: Remarks: None known.
Ingestion	: Remarks: None known.

Further information**Product:**

Remarks : None known.

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SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:**N-(1,4-Dimethylpentyl)-N'-phenylbenzene-1,4-diamine:**

- Toxicity to fish : LC50 (Oryzias latipes (Orange-red killifish)): 0.028 mg/l
Exposure time: 96 h
Remarks: Read-across from a similar material
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.13 mg/l
Exposure time: 48 h
Remarks: Read-across from a similar material
- Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (algae)): 0.335 mg/l
Exposure time: 72 h

NOEC (Chlorella pyrenoidosa): 0.0958 mg/l
Exposure time: 72 h
Remarks: Read-across from a similar material
- Toxicity to fish (Chronic toxicity) : NOEC (Oryzias latipes): 0.0037 mg/l
Exposure time: 30 d
Remarks: Read-across from a similar material
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.007 mg/l
Exposure time: 21 d
Remarks: Read-across from a similar material
- Toxicity to microorganisms : EC50 (Bacteria): 420 mg/l
Exposure time: 3 h
Remarks: Read-across from a similar material
- Plant toxicity : NOEC:: 7.8 mg/kg
Test period: 15 d

N-1,3-Dimethylbutyl-N'-phenyl-p-phenylenediamine:

- Toxicity to fish : LC50 (Oryzias latipes (Japanese medaka)): 0.028 mg/l
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.13 mg/l
Exposure time: 48 h
Remarks: Read-across from a similar material
- Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 0.335 mg/l
Exposure time: 72 h
Remarks: Read-across from a similar material

NOEC: 0.23 mg/l

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Exposure time: 72 h
Remarks: Read-across from a similar material

Toxicity to fish (Chronic toxicity) : NOEC (Oryzias latipes (Japanese medaka)): 0.0037 mg/l
Exposure time: 30 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.007 mg/l
Exposure time: 21 d
Remarks: Read-across from a similar material

Persistence and degradability**Product:**

Biochemical Oxygen Demand (BOD) : Remarks: No data available

Chemical Oxygen Demand (COD) : Remarks: No data available

Components:**N-(1,4-Dimethylpentyl)-N'-phenylbenzene-1,4-diamine:**

Biodegradability : Biodegradation: 0 %
Exposure time: 35 d
Remarks: Not readily biodegradable.

Stability in water : Degradation half life: 5.15 h (25 °C)

N-1,3-Dimethylbutyl-N'-phenyl-p-phenylenediamine:

Biodegradability : Method: Ready Biodegradability: Modified MITI Test (I)
Remarks: Not readily biodegradable.

Stability in water : Degradation half life: 2.9 h
Hydrolysis: at 24 °C

Bioaccumulative potential**Components:****N-(1,4-Dimethylpentyl)-N'-phenylbenzene-1,4-diamine:**

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 49
Remarks: Read-across from a similar material

N-1,3-Dimethylbutyl-N'-phenyl-p-phenylenediamine:

Bioaccumulation : Bioconcentration factor (BCF): 569
Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : log Pow: 4.68 (68 °F / 20 °C)

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Mobility in soil**Components:****N-(1,4-Dimethylpentyl)-N'-phenylbenzene-1,4-diamine:**

Distribution among environmental compartments : log Koc: calculated 4.06
Method: QSAR model

N-1,3-Dimethylbutyl-N'-phenyl-p-phenylenediamine:

Distribution among environmental compartments : log Koc: 3.45
Method: QSAR model

Other adverse effects**Components:****N-(1,4-Dimethylpentyl)-N'-phenylbenzene-1,4-diamine:**

Results of PBT and vPvB assessment : Not fulfilling vPvB (very persistent, very bioaccumulative) criteria. 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.

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : Dispose of in accordance with local regulations.

SECTION 14. TRANSPORT INFORMATION**International Regulations****IATA-DGR**

UN/ID No. : UN 3082
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.
(N-(1,4-dimethylpentyl)-N-phenylbenzene-1,4-diamine, N-1,3-Dimethylbutyl-N'-phenyl-p-phenylenediamine)
Class : 9
Packing group : III
Labels : Miscellaneous
Packing instruction (cargo aircraft) : 964
Packing instruction (passenger aircraft) : 964

IMDG-Code

UN number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(N-(1,4-dimethylpentyl)-N-phenylbenzene-1,4-diamine, N-1,3-Dimethylbutyl-N'-phenyl-p-phenylenediamine)

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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**

Not regulated as a dangerous good

Remarks : Shipping in package sizes of less than 5 L (liquids) or 5 KG (solids) may lead to a non-regulated classification.

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**

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 Hazards : Respiratory or skin sensitization
Reproductive toxicity

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.

California Prop. 65

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

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

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

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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

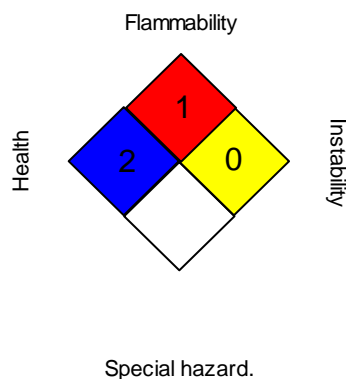
TCSI : On the inventory, or in compliance with the inventory

TSCA : On the inventory, or 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:**

HEALTH	*	2
FLAMMABILITY		1
PHYSICAL HAZARD		0

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

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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

Revision Date : 04/12/2019

The information provided in this Material 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.

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