

SAFETY DATA SHEET

NAUGALUBE ® 438L



Version Revision Date: SDS Number: Date of last issue: 01/19/2022
2.1 06/01/2023 203000017046 Country / Language: US / EN

SECTION 1. IDENTIFICATION

Product name : NAUGALUBE ® 438L
Product code : 000000000058318635

Manufacturer or supplier's details

Company : LANXESS Corporation
 Product Safety & Regulatory Affairs
 111 RIDC Park West Drive
 Pittsburgh, Pennsylvania 15275-1112

Responsible Department : (800) LANXESS
 (412) 809-1000
 lanxesshes@lanxess.com

Emergency telephone : CHEMTREC (800) 424-9300 or
 (703) 527-3887 (Outside U.S.A) and mention CCN12916.
 Lanxess Emergency Phone (800) 410-3063.

Recommended use of the chemical and restrictions on use


Recommended use : Antioxidant

SECTION 2. HAZARDS IDENTIFICATION

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

Carcinogenicity : Category 2

GHS label elements

Hazard pictograms : 

Signal Word : Warning
Hazard Statements : Suspected of causing cancer.

Precautionary Statements : **Prevention:**
Obtain special instructions before use.
Do not handle until all safety precautions have been read and

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

Response:

IF exposed or concerned: Get medical advice/ attention.

Storage:

Store locked up.

Disposal:

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

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance
Substance name : Reaction products of Benzeneamine, N-phenyl- with nonene (branched)

Components

Chemical name	CAS-No.	Concentration (% w/w)
diphenylamine (Impurity)	122-39-4	>= 0.1 - < 1

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Do not leave the victim unattended.
Show this safety data sheet to the doctor in attendance.

If inhaled : Remove to fresh air.
Get medical attention if symptoms occur.

In case of skin contact : Wash off with warm water and soap.
If skin irritation occurs: Get medical advice/ attention.
Wash contaminated clothing before re-use.

In case of eye contact : Immediately flush eye(s) with plenty of water.
Remove contact lenses.
Get medical attention if irritation develops and persists.

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If swallowed : Rinse mouth with water.
Do not induce vomiting unless directed to do by medical personnel.
Get medical attention if symptoms occur.

Most important symptoms and effects, both acute and delayed

Symptoms : Adverse symptoms sometimes include the following:
carcinogenic effects

Effects : Suspected of causing cancer.

Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing
If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Notes to physician : Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media : High volume water jet

Specific hazards during fire fighting : Burning produces irritant fumes.

Hazardous combustion products : Carbon dioxide (CO₂)
Carbon monoxide
Nitrogen oxides (NO_x)

Further information : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire.
No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : No action shall be taken involving any personal risk or without suitable training.
Put on appropriate personal protection equipment.
Do not touch or walk through spilled material.

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- Evacuate personnel to safe areas.
Keep unnecessary and unprotected personnel from entering.
- Environmental precautions : Prevent product from entering drains.
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 : Stop leak if safe to do so.
containment and cleaning up Move containers from spill area.
Wash spillages into an effluent treatment plant or proceed as
follows.
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).
Dispose of wastes in an approved waste disposal facility.
Do not allow into the sewerage system, surface waters or
groundwater or into the soil.

SECTION 7. HANDLING AND STORAGE

- Advice on safe handling : Avoid contact with skin, eyes and clothing.
Do not smoke.
Avoid inhalation of vapor or mist.
Provide sufficient air exchange and/or exhaust in work rooms.
Wash thoroughly after handling.
- Conditions for safe storage : Store in accordance with local regulations.
Store in original container protected from direct sunlight in a
dry, cool and well-ventilated area, away from incompatible
materials (see Section 10) and food and drink.
Keep container closed when not in use.
Containers which are opened must be carefully resealed and
kept upright to prevent leakage.
Do not store in unlabeled containers.
Use appropriate container to avoid environmental contamina-
tion.
- Materials to avoid : Never allow product to get in contact with water during stor-
age.
- Further information on stor- : Stable under recommended storage conditions.
age stability

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SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
diphenylamine	122-39-4	TWA	10 mg/m3	ACGIH

Engineering measures : Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protective equipment

Respiratory protection : not required under normal use
In the case of vapor formation use a respirator with an approved filter.
In case of mist, spray or aerosol exposure wear suitable personal respiratory protection and protective suit.

NIOSH approved, air-purifying organic vapor respirator.

Hand protection

Material : Nitrile rubber - NBR

Material : Butyl rubber - IIR

Remarks : Impervious gloves

Eye protection : Safety glasses with side-shields

Skin and body protection : Wear suitable protective clothing.
Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period.
Appropriate techniques should be used to remove potentially contaminated clothing.
Wash contaminated clothing before reusing.
Ensure that eyewash stations and safety showers are close to the workstation location.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state : liquid

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Color : brown

Odor : slight

Odor Threshold : No data available

pH : 6 - 9
substance/mixture is non-soluble (in water)

Solidification point : -45 °F / -43 °C

Boiling point/boiling range : > 572 °F / > 300 °C
(989 hPa)

Flash point : > 392 - < 482 °F / > 200 - < 250 °C
(999 hPa)
Method: ASTM D 92

Evaporation rate : No data available

Self-ignition : 824 °F / 440 °C
1,030 hPa

Burning number : No data available

Upper explosion limit / Upper flammability limit : No data available

Lower explosion limit / Lower flammability limit : No data available

Vapor pressure : < 0.01 hPa (77 °F / 25 °C)

Relative vapor density : No data available

Relative density : 0.93 - 0.98 (77 °F / 25 °C)

Density : 0.97 g/cm³ (68 °F / 20 °C)
Method: ASTM D 1298

Solubility(ies)
Water solubility : < 0.01 mg/l practically insoluble (68 °F / 20 °C)

Solubility in other solvents : No data available

Partition coefficient: n-octanol/water : log Pow: > 7.6
estimated

Ignition temperature : No data available

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Decomposition temperature : No data available

Self-Accelerating decomposition temperature (SADT) : No data available

Viscosity

 Viscosity, dynamic : 450 - 900 mPa.s (104 °F / 40 °C)
 Method: ASTM D 445

 Viscosity, kinematic : 400 - 900 mm²/s (104 °F / 40 °C)

Explosive properties : No data available

Oxidizing properties : No data available

Molecular weight : 295.5 - 421.7 g/mol

SECTION 10. STABILITY AND REACTIVITY

Reactivity : No dangerous reaction known under conditions of normal use.

Chemical stability : The product is chemically stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : Heat, flames and sparks.
Exposure to moisture.
Exposure to water vapor.

Incompatible materials : Strong oxidizing agents

Hazardous decomposition products : No decomposition if stored and applied as directed.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation
Eye contact
Skin contact

Acute toxicity

Not classified based on available information.

Product:

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Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity : Acute toxicity estimate: > 200 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: 3,015 mg/kg
Method: Calculation method

Components:

diphenylamine:

Acute oral toxicity : LD50 (Rat): > 800 mg/kg

LD50 (Mouse): 2,720 mg/kg

LD50 (Rat): 1,165 mg/kg

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg

Skin corrosion/irritation

Not classified based on available information.

Product:

Remarks : Information given is based on data obtained from similar substances.

Components:

diphenylamine:

Species : Rabbit
Method : Draize Test
Result : No skin irritation

Serious eye damage/eye irritation

Not classified based on available information.

Components:

diphenylamine:

Species : Rabbit
Result : Irritating to eyes.
Method : Draize Test

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Respiratory or skin sensitization

Skin sensitization

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Product:

Species : Guinea pig
Result : negative
Remarks : Information given is based on data obtained from similar sub-
stances.

Components:

diphenylamine:

Routes of exposure : Skin contact
Species : Guinea pig
Result : Did not cause sensitization on laboratory animals.

Germ cell mutagenicity

Not classified based on available information.

Components:

diphenylamine:

Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 473
Result: negative
GLP: yes

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with metabolic activation
Method: OECD Test Guideline 473
Result: positive
GLP: yes

Test Type: In vitro mammalian cell gene mutation test

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Test system: mouse lymphoma cells
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 476
Result: negative
GLP: yes

Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with metabolic activation
Method: OECD Test Guideline 476
Result: positive
GLP: yes

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Mouse (male and female)
Cell type: Bone marrow
Application Route: Oral
Method: OECD Test Guideline 474
Result: negative
GLP: yes

Test Type: unscheduled DNA synthesis assay
Species: Rat (male)
Cell type: Liver cells
Application Route: Oral
Method: OECD Test Guideline 486
Result: negative
GLP: yes

Carcinogenicity

Suspected of causing cancer.

Components:

diphenylamine:

Species : Rat, male
Application Route : Oral
Exposure time : 2 Years
Dose : 0 - 250 - 1000 - 4000 parts per million
NOAEL : 250 ppm
Method : OECD Test Guideline 451
Result : positive
GLP : yes
Remarks : Animal experiments showed a statistically significant number of tumors.

Species : Rat, female
Application Route : Oral
Exposure time : 2 Years

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Dose : 0 - 250 - 1000 - 4000 parts per million
LOAEL : 250 parts per million
Method : OECD Test Guideline 451
Result : positive
GLP : yes
Remarks : Animal experiments showed a statistically significant number of tumors.

Species : Mouse, male
Application Route : Oral
Exposure time : 2 Years
Dose : 0 - 250 - 1000 - 4000 parts per million
LOAEL : 250 parts per million
Method : OECD Test Guideline 451
Result : positive
GLP : yes
Remarks : Animal experiments showed a statistically significant number of tumors.

Species : Mouse, female
Application Route : Oral
Exposure time : 2 Years
Dose : 0 - 250 - 1000 - 4000 parts per million
LOAEL : 250 parts per million
Method : OECD Test Guideline 451
Result : negative
GLP : yes
Remarks : Animal testing did not show any carcinogenic effects.

Carcinogenicity - Assessment : Limited evidence of carcinogenicity in animal studies

IARC Group 2B: Possibly carcinogenic to humans
diphenylamine 122-39-4

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.

STOT-single exposure

Not classified based on available information.

Product:

Assessment : Not classified due to data which are conclusive although insuf-

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icient for classification.

Components:

diphenylamine:

Target Organs : Blood
Assessment : May cause damage to organs.

STOT-repeated exposure

Not classified based on available information.

Components:

diphenylamine:

Routes of exposure : Ingestion
Target Organs : spleen, Liver, Kidney
Assessment : May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Product:

Species : Rat, male and female
NOAEL : 25 mg/kg
Application Route : Oral
Remarks : Information given is based on data obtained from similar substances.

Components:

diphenylamine:

Species : Rat, male and female
NOAEL : 3 mg/kg
LOAEL : 30 mg/kg
Application Route : Oral
Exposure time : 2 a
Number of exposures : daily
Dose : 0,3-3-30-150-300 mg/kg bw/d
Method : OECD Test Guideline 452
GLP : No information available.
Remarks : Chronic toxicity

Species : Dog, male and female
NOAEL : 2 mg/kg
LOAEL : 20 mg/kg
Application Route : Oral
Exposure time : 737 d

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Number of exposures : daily
Dose : 2 - 20 - 200 mg/kg bw/day
Method : OECD Test Guideline 452
GLP : No information available.
Remarks : Chronic toxicity

Aspiration toxicity

Not classified based on available information.

Further information

Product:

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

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish : Remarks: Information refers to the main ingredient.

Toxicity to daphnia and other aquatic invertebrates : Remarks: Information refers to the main ingredient.

Toxicity to fish (Chronic toxicity) : Remarks: No toxicity at the limit of solubility.

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Remarks: No toxicity at the limit of solubility.

Ecotoxicology Assessment

Chronic aquatic toxicity : May cause long lasting harmful effects to aquatic life.

Components:

diphenylamine:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 2.2 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 2 mg/l
Exposure time: 48 h
Analytical monitoring: yes
Method: OECD Test Guideline 202
GLP: yes

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EC50 (Daphnia magna (Water flea)): 1.2 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): 2.17 mg/l
End point: Growth rate
Exposure time: 72 h
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

NOEC (Pseudokirchneriella subcapitata (green algae)): 0.37 mg/l
End point: Growth rate
Exposure time: 72 h
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.16 mg/l
Exposure time: 21 d
Method: OECD Test Guideline 202

Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

Persistence and degradability

Product:

Biodegradability : Remarks: Not readily biodegradable.

Components:

diphenylamine:

Biodegradability : aerobic
Concentration: 1.9 mg/l
Result: Not readily biodegradable.
Biodegradation: 26 %
Exposure time: 28 d
Method: OECD Test Guideline 301D
GLP: No information available.

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Bioaccumulative potential

Product:

Bioaccumulation : Remarks: No data available

Components:

diphenylamine:

Bioaccumulation : Remarks: Due to the distribution coefficient n-octanol/water, accumulation in organisms is not expected.

Partition coefficient: n-octanol/water : log Pow: 3.82 (68 °F / 20 °C)
Method: OECD Test Guideline 107

Mobility in soil

No data available

Other adverse effects

Product:

Additional ecological information : May cause long-term adverse effects in the aquatic environment.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

RCRA - Resource Conservation and Recovery Authorization Act : If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

Waste from residues : The generation of waste should be avoided or minimized wherever possible.
This material and its container must be disposed of in a safe way.
Empty containers retain product residue; observe all precautions for product.
Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
Waste disposal should be in accordance with existing federal, state, provincial and/or local environmental controls.

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SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

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

Hazard and Handling Notes.

Not dangerous cargo

Keep separated from foodstuffs

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA 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 : Carcinogenicity

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.

US State Regulations

Massachusetts Right To Know

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know

bis(nonylphenyl)amine	36878-20-3	> 1
Benzenamine, 4-nonyl-N-phenyl-diphenylamine	65036-85-3	> 1
	122-39-4	< 0.5

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.

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TSCA inventory

TSCA : All substances listed as active on the TSCA inventory

TSCA list

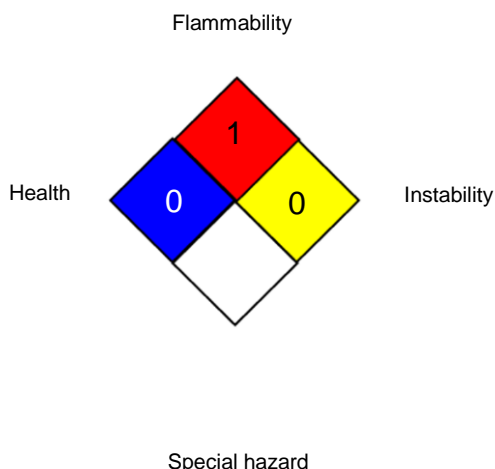
No substances are subject to a Significant New Use Rule.

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

SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV:

HEALTH	*	0
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

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
ACGIH / TWA : 8-hour, time-weighted average

AIIIC - 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

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Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

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The data contained in this Safety Data Sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. 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 to be a guidance for processing and does not contain any 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. It is the responsibility of the recipient of the product to ensure that any proprietary rights and existing laws and legislation are observed.

Relevant changes from the previous version are marked on the left side of the Safety Data Sheet with a black double bar in appropriate places.