SAFETY DATA SHEET



The information in this Safety Data Sheet is required pursuant to GHS UN rev. 7

Date of issue/Date of revision 10 May 2023

Version 4.03

Section 1. Identification

Product code : 00184962

Product name : SIGMALINE 855 HARDENER

Chemical name : Polymethylenepolyphenyl isocyanate

Product type : Liquid.

Other means of identification

Not available.

Relevant identified uses of the substance or mixture and uses advised against

Product use : Coating.

Professional applications, Used by spraying.

Uses advised against : Product is not intended, labelled or packaged for consumer use.

Supplier's information: PPG Asian Paints Private Limited

6A Shanti Nagar Santa Cruz (East) Mumbai - 400055

India

Emergency telephone

number:

: +91 22 6815 8700

Section 2. Hazards identification

Classification of the substance or mixture

: ACUTE TOXICITY (inhalation) - Category 4 SKIN CORROSION/IRRITATION - Category 2

SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2A

RESPIRATORY SENSITISATION - Category 1

SKIN SENSITISATION - Category 1 CARCINOGENICITY - Category 2

SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract

irritation) - Category 3

SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2 Percentage of the mixture consisting of ingredient(s) of unknown hazards to the

aquatic environment: 99%

GHS label elements

Hazard pictograms





Signal word : Danger

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Product name SIGMALINE 855 HARDENER

Section 2. Hazards identification

Hazard statements

: Causes skin irritation.

May cause an allergic skin reaction.

Causes serious eye irritation.

Harmful if inhaled.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause respiratory irritation. Suspected of causing cancer.

May cause damage to organs through prolonged or repeated exposure. (respiratory

system)

Precautionary statements

Prevention

: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves, protective clothing and eye or face protection. Wear respiratory protection. Use only outdoors or in a wellventilated area. Do not breathe vapour. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace.

Response

IF exposed or concerned: Get medical advice or attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell. If experiencing respiratory symptoms: Call a POISON CENTER or doctor. Take off contaminated clothing and wash it before reuse. IF ON SKIN: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice or attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.

Storage Disposal : Store locked up. Store in a well-ventilated place. Keep container tightly closed.

Dispose of contents and container in accordance with all local, regional, national

and international regulations.

Other hazards which do not : None known. result in classification

Section 3. Composition/information on ingredients

Substance/mixture

: Mixture

Chemical name

: Polymethylenepolyphenyl isocyanate

CAS number/other identifiers

CAS number : Not applicable.

Ingredient name	%	CAS number
Socyanic acid, polymethylenepolyphenylene ester	50 - 100	9016-87-9
4,4'-methylenediphenyl diisocyanate	25 - <50	101-68-8
o-(p-isocyanatobenzyl)phenyl isocyanate	10 - <20	5873-54-1
2,2'-methylenediphenyl diisocyanate	0.3 - <1	2536-05-2

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

SUB codes represent substances without registered CAS Numbers.

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Product name SIGMALINE 855 HARDENER

Section 4. First aid measures

Description of necessary first aid measures

Eye contact: Remove contact lenses, irrigate copiously with clean, fresh water, holding the

eyelids apart for at least 10 minutes and seek immediate medical advice.

Inhalation : Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is

irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by

trained personnel.

Skin contact: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and

water or use recognised skin cleanser. Do NOT use solvents or thinners.

Ingestion: If swallowed, seek medical advice immediately and show the container or label.

Keep person warm and at rest. Do NOT induce vomiting.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : Harmful if inhaled. May cause respiratory irritation. May cause allergy or asthma

symptoms or breathing difficulties if inhaled.

Skin contact: Causes skin irritation. May cause an allergic skin reaction.

Ingestion: No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact: Adverse symptoms may include the following:

pain or irritation watering redness

Inhalation : Adverse symptoms may include the following:

respiratory tract irritation

coughing

wheezing and breathing difficulties

asthma

Skin contact: Adverse symptoms may include the following:

irritation redness

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed.

The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training. If it

is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing

thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Firefighting measures

Extinguishing media

Suitable extinguishing

media

: Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing

media

: None known.

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Product name SIGMALINE 855 HARDENER

Section 5. Firefighting measures

Specific hazards arising from the chemical

: In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products

: Decomposition products may include the following materials: carbon oxides

nitrogen oxides

Cyanate and isocyanate. hydrogen cyanide

Special protective actions for fire-fighters

: 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

 Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders

: If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions

: Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

Small spill

: Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill

: Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Special provisions

: Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Place in a suitable container. The contaminated area should be cleaned immediately with a suitable decontaminant. One possible (flammable) decontaminant comprises (by volume): water (45 parts), ethanol or isopropyl alcohol (50 parts) and concentrated (d: 0,880) ammonia solution (5 parts). A non-flammable alternative is sodium carbonate (5 parts) and water (95 parts). Add the same decontaminant to the remnants and let stand for several days until no further reaction in an unsealed container. Once this stage is reached, close container and dispose of according to local regulations (see section 13). Do not allow to enter drains or watercourses. If the product contaminates lakes, rivers, or sewers, inform the appropriate authorities in accordance with local regulations.

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Section 7. Handling and storage

Precautions for safe handling

Protective measures

: Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitisation problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene

: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

: Store between the following temperatures: 0 to 35°C (32 to 95°F). 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. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Precautions should be taken to minimise exposure to atmospheric humidity or water. CO₂ will be formed, which, in closed containers, could result in pressurisation.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
≰,4'-methylenediphenyl diisocyanate	ACGIH TLV (United States, 1/2022). TWA: 0.005 ppm 8 hours. ACGIH TLV (United States, 1/2007). TWA: 0.05 mg/m³ 8 hours.

Recommended monitoring procedures

: Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Appropriate engineering controls

: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls

: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

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Section 8. Exposure controls/personal protection

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. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection

: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Gloves

: butyl rubber

Body protection

: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection

: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

: Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Restrictions on use

Persons with a history of asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used.

Section 9. Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state
Colour
Colour
Colour
Colour
Colourless.
Colourless.
Colourless.
Amine-like.
Not available.
Melting point/freezing point
Colourless.
Not available.
Soiling point, initial boiling
Colourless.
Not available.
Soiling point, initial boiling
Colourless.

point, and boiling range

Flammability : Not available.

Lower and upper explosive : Not available.

Lower and upper explosive (flammable) limits

Flash point : Closed cup: Not applicable.

Auto-ignition temperature

: [Ingredient name	°C	°F	Method
	4,4'-methylenediphenyl diisocyanate	>601	>1113.8	EU A.15

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Section 9. Physical and chemical properties

Decomposition temperature

рΗ

: Not available.: Not applicable.

Viscosity

: Kinematic (40°C): >21 mm²/s

Solubility(ies)

Media Result

Cold water Not soluble

Partition coefficient: n-

octanol/water

: Not applicable.

Vapour pressure

	Vapour Pressure at 20°C			Vapour pressure at 50°C		
Ingredient name	mm Hg	kPa	Method	mm Hg	kPa	Method
2/2'-methylenediphenyl diisocyanate	0.000061	0.0000081	OECD 104			

Relative density : 1.23

Relative vapour density

Particle characteristics

: Not available.

Modion portiologiza

Median particle size : Not applicable.

Evaporation rate : Not available.

Section 10. Stability and reactivity

Reactivity: No specific test data related to reactivity available for this product or its ingredients.

Chemical stability: The product is stable.

Possibility of hazardous reactions

Conditions to avoid : In a fire, hazardous decomposition products may be produced.

Incompatible materials

: Keep away from: oxidising agents, strong alkalis, strong acids, amines, alcohols, water. Uncontrolled exothermic reactions occur with amines and alcohols.

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

Hazardous decomposition products

: Depending on conditions, decomposition products may include the following materials: Cyanate and isocyanate. carbon oxides nitrogen oxides hydrogen

Hazardous polymerisation

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

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Socyanic acid, polymethylenepolyphenylene ester	LD50 Dermal	Rabbit	>9400 mg/kg	-
4,4'-methylenediphenyl diisocyanate	LD50 Oral LD50 Oral	Rat Rat	49 g/kg 9200 mg/kg	-

Conclusion/Summary: There are no data available on the mixture itself.

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Section 11. Toxicological information

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
4,4'-methylenediphenyl diisocyanate	Skin - Irritant	Rabbit	-	-	-

Conclusion/Summary

Skin
Eyes
There are no data available on the mixture itself.
Respiratory
There are no data available on the mixture itself.

Sensitisation

Product/ingredient name	Route of exposure	Species	Result
4,4'-methylenediphenyl diisocyanate	Respiratory	Guinea pig	Sensitising
	skin	Mouse	Sensitising

Conclusion/Summary

Skin: There are no data available on the mixture itself.Respiratory: There are no data available on the mixture itself.

Mutagenicity

Conclusion/Summary: There are no data available on the mixture itself.

Carcinogenicity

Product/ingredient name	Result	Species	Dose	Exposure
4,4'-methylenediphenyl diisocyanate	Positive - Inhalation - TC	Rat	0 to 6 mg/m ³	2 years; 5 days per week

Conclusion/Summary: There are no data available on the mixture itself.

Reproductive toxicity

Conclusion/Summary: There are no data available on the mixture itself.

Teratogenicity

Conclusion/Summary: There are no data available on the mixture itself.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Isocyanic acid, polymethylenepolyphenylene ester	Category 3	-	Respiratory tract irritation
4,4'-methylenediphenyl diisocyanate	Category 3	-	Respiratory tract irritation
o-(p-isocyanatobenzyl)phenyl isocyanate	Category 3	-	Respiratory tract irritation
2,2'-methylenediphenyl diisocyanate	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

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Product name SIGMALINE 855 HARDENER

Section 11. Toxicological information

Name	3.5	Route of exposure	Target organs
		inhalation inhalation - -	respiratory system -

Aspiration hazard

Not available.

Information on likely routes : Not available.

of exposure

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : Harmful if inhaled. May cause respiratory irritation. May cause allergy or asthma

symptoms or breathing difficulties if inhaled.

Skin contact : Causes skin irritation. May cause an allergic skin reaction.

: No known significant effects or critical hazards. Ingestion

Symptoms related to the physical, chemical and toxicological characteristics

: Adverse symptoms may include the following: **Eye contact**

pain or irritation watering redness

Inhalation Adverse symptoms may include the following:

respiratory tract irritation

coughing

wheezing and breathing difficulties

Skin contact : Adverse symptoms may include the following:

> irritation redness

Ingestion : No specific data.

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

Short term exposure

Potential immediate

: Not available.

effects

Potential delayed effects : Not available.

Long term exposure

Potential immediate

effects

Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : May cause damage to organs through prolonged or repeated exposure. Once

sensitized, a severe allergic reaction may occur when subsequently exposed to very

low levels.

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Product name SIGMALINE 855 HARDENER

Section 11. Toxicological information

Carcinogenicity : Suspected of causing cancer. Risk of cancer depends on duration and level of

exposure.

Mutagenicity : No known significant effects or critical hazards.Reproductive toxicity : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
	25.58 mg/l
Inhalation (dusts and mists)	2.14 mg/l

Other information

Based on the properties of the isocyanate components and considering toxicological data on similar mixtures, this mixture may cause acute irritation and/or sensitisation of the respiratory system, leading to an asthmatic condition, wheezing and tightness of the chest. Sensitised persons may subsequently show asthmatic symptoms when exposed to atmospheric concentrations well below the OEL. Persons with a history of skin sensitisation problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Repeated exposure may lead to permanent respiratory disability. Moisture-sensitive material.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
	4.51	-	high
o-(p-isocyanatobenzyl) phenyl isocyanate	4.51	-	high
2,2'-methylenediphenyl diisocyanate	5.22	-	high

Mobility in soil

Soil/water partition coefficient (K_{oc})

: Not available.

Other adverse effects : No known significant effects or critical hazards.

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Product name SIGMALINE 855 HARDENER

Section 13. Disposal considerations

Disposal methods

: The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	UN	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Marine pollutant substances	Not applicable.	Not applicable.	Not applicable.

Additional information

UN : None identified. **IMDG** : None identified. IATA : None identified.

Special precautions for user :Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according : Not applicable. to IMO instruments

Section 15. Regulatory information

International regulations

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

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Product name SIGMALINE 855 HARDENER

Section 16. Other information

History

Date of issue/Date of : 10 May 2023

revision

Date of previous issue: 5/20/2021Version: 4.03Prepared by: EHS

▼ey to abbreviations : ATE = Acute Toxicity Estimate

BCF = Bioconcentration Factor

GHS = Globally Harmonized System of Classification and Labelling of Chemicals

IATA = International Air Transport Association

IBC = Intermediate Bulk Container

IMDG = International Maritime Dangerous Goods

LogPow = logarithm of the octanol/water partition coefficient

MARPOL = International Convention for the Prevention of Pollution From Ships,

1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)

UN = United Nations

Procedure used to derive the classification

Classification	Justification
ACUTE TOXICITY (inhalation) - Category 4	Calculation method
SKIN CORROSION/IRRITATION - Category 2	Calculation method
SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2A	Calculation method
RESPIRATORY SENSITISATION - Category 1	Calculation method
SKIN SENSITISATION - Category 1	Calculation method
CARCINOGENICITY - Category 2	Calculation method
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract	Calculation method
irritation) - Category 3	
SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2	Calculation method

▼ Indicates information that has changed from previously issued version.

Notice to reader

The information contained in this data sheet is based on present scientific and technical knowledge. The purpose of this information is to draw attention to the health and safety aspects concerning the products supplied by us, and to recommend precautionary measures for the storage and handling of the products. No warranty or guarantee is given in respect of the properties of the products. No liability can be accepted for any failure to observe the precautionary measures described in this data sheet or for any misuse of the products.

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