

Date of issue 4/20/2026 (month/day/year)

Version 2.01

Section 1. Chemical product and company identification

A. **Product name** : STEELGUARD 951 HARDENER BLACK
Product code : 000010025431

Other means of identification

00446948; 00454430 ; 00468619 ; 50951-C9000/4.4K

B. **Relevant identified uses of the substance or mixture and uses advised against**

Product use : Professional applications, Used by spraying.

**Use of the substance/
mixture** : Coating.

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

C. **Supplier's or Importer's
information** : PPG SSC
(44714)
19, Yeocheon-ro 217beon-gil, Nam-gu,
Ulsan, Korea
Tel: +82-52-210-8222

Email Address Korea.MSDS@PPG.COM

**Emergency telephone
number:** : +82-52-210-8331

Section 2. Hazards identification

A. **Hazard classification** : CORROSIVE TO METALS - Category 1
ACUTE TOXICITY (dermal) - Category 3
ACUTE TOXICITY (inhalation) - Category 4
SKIN CORROSION - Category 1
SERIOUS EYE DAMAGE - Category 1
SKIN SENSITIZATION - Category 1
CARCINOGENICITY - Category 2
AQUATIC HAZARD (LONG-TERM) - Category 3
This product is classified in accordance with the Industrial Safety and Health Act and the Chemical Control Act.

B. **GHS label elements, including precautionary statements**

Symbol : 

Signal word : Danger

Section 2. Hazards identification

- Hazard statements** : H290 - May be corrosive to metals.
 H311 - Toxic in contact with skin.
 H314 - Causes severe skin burns and eye damage.
 H317 - May cause an allergic skin reaction.
 H318 - Causes serious eye damage.
 H332 - Harmful if inhaled.
 H351 - Suspected of causing cancer.
 H412 - Harmful to aquatic life with long lasting effects.
- Precautionary statements**
- Prevention** : P202 - Do not handle until all safety precautions have been read and understood.
 P280 - Wear protective gloves, protective clothing and eye or face protection.
 P234 - Keep only in original packaging.
 P273 - Avoid release to the environment.
 P260 - Do not breathe vapor.
- Response** : P390 - Absorb spillage to prevent material damage.
 P308 + P313 - IF exposed or concerned: Get medical advice or attention.
 P304 + P310 - IF INHALED: Immediately call a POISON CENTER or doctor.
 P301 + P310, P330, P331 - IF SWALLOWED: Immediately call a POISON CENTER or doctor. Rinse mouth. Do NOT induce vomiting.
 P303 + P361 + P353, P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Immediately call a POISON CENTER or doctor.
 P333 + P313 - If skin irritation or rash occurs: Get medical advice or attention.
 P363 - Wash contaminated clothing before reuse.
 P305 + P351 + P338, P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.
 P321 - Specific treatment (see the label).
- Storage** : Not applicable.
- Disposal** : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

- C. Other hazards which do not result in classification** : Causes digestive tract burns.

Section 3. Composition/information on ingredients

CAS number/other identifiers

- CAS number** : Not applicable.

Chemical name	Common name	Identifiers	%
멜라민	MELAMINE	CAS: 108-78-1	50 - <60
Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine	POLYAMIDE	EC: 203-615-4 CAS: 68082-29-1	20 - <30
1,3-bis(aminomethyl)benzene	1,3-Benzenedimethanamine	EC: 500-191-5 CAS: 1477-55-0	10 -<20
Trientine	TRIETHYLENETETRAMINE	EC: 216-032-5 CAS: 112-24-3	1 - <5

Section 3. Composition/information on ingredients

CARBON	CARBON	EC: 203-950-6 CAS: 7440-44-0 EC: 231-153-3	1 - <5
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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.

Section 4. First aid measures

- A. Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek immediate medical attention.
- B. Skin contact** : Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.
- C. 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.
- D. Ingestion** : If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do NOT induce vomiting.
- E. 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. Fire-fighting measures

- A. Extinguishing media**
- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.
- B. Specific hazards arising from the chemical** : In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Section 5. Fire-fighting measures

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon oxides
nitrogen oxides
halogenated compounds
metal oxide/oxides

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

Fire-fighting procedures : 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.

Section 6. Accidental release measures

A. Personal precautions, protective equipment and emergency procedures : 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 spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

B. Environmental precautions : Avoid dispersal of spilled 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). Water polluting material. May be harmful to the environment if released in large quantities.

C. Methods and materials 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. Absorb spillage to prevent material damage. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Absorb spillage to prevent material damage. Approach 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 spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

A. Precautions for safe handling : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems 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 vapor or mist. Do not ingest. Avoid release to the environment. 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. Absorb spillage to prevent material damage.

Section 7. Handling and storage

Materials such as cleaning rags, paper wipes and protective clothing, which are contaminated with the product may spontaneously self-ignite some hours later. To avoid the risks of fires, all contaminated materials should be stored in purpose-built containers or in metal containers with tight-fitting, self-closing lids. Contaminated materials should be removed from the workplace at the end of each working day and be stored outside.

- B. 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 in a corrosion resistant container with a resistant inner liner. Store locked up. Keep away from metals. 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 unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

A. Occupational exposure limits

Ingredient name	Exposure limits
1,3-bis(aminomethyl)benzene	ISHA Article 42 (Republic of Korea, 1/2020) Absorbed through skin. CEIL: 0.1 mg/m ³ .
CARBON	ACGIH TLV (United States) TWA: 10 mg/m ³ (Inhalable). TWA: 3 mg/m ³ (Respirable dust).

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.

- B. 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.

C. Personal protective equipment

Respiratory protection : Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.

Eye protection : Chemical splash goggles and face shield.

Section 8. Exposure controls/personal 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** : nitrile neoprene
- 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.
- 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.

Section 9. Physical and chemical properties

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

A. Appearance

Physical state : Liquid.

Color : Not available.

B. Odor : Characteristic.

C. Odor threshold : Not available.

D. pH : Not applicable.

E. Melting/freezing point : Not available.

F. Boiling point/boiling range : >37.78°C (>100°F)

G. Flash point : Closed cup: Not applicable.

H. Evaporation rate : Not available.

I. Flammability (solid, gas) : Not available.

J. Lower and upper explosive (flammable) limits : Not available.

K. Vapor pressure :

Ingredient name	Vapor Pressure at 20°C			Vapor pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
carbon	<0.1	<0.013				

L. Solubility(ies) :

Media	Result
cold water	Not soluble

Solubility in water : Not available.

M. Vapor density : Not available.

Relative density : 1.28

Section 9. Physical and chemical properties

N. Partition coefficient: n-octanol/water : Not applicable.

P. Auto-ignition temperature :

Ingredient name	°C	°F	Method
carbon	<200	<392	

Q. Decomposition temperature : Not available.

R. Viscosity : Dynamic (room temperature): Not available.
Kinematic (room temperature): Not available.
Kinematic (40°C (104°F)): >21 mm²/s (>21 cSt)

Flow time (ISO 2431) : Not available.

S. Molecular weight : Not applicable.

Section 10. Stability and reactivity

A. Chemical stability : The product is stable.
Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

B. Conditions to avoid : When exposed to high temperatures may produce hazardous decomposition products.

C. Incompatible materials : Keep away from the following materials to prevent strong exothermic reactions: oxidizing agents, strong alkalis, strong acids.

D. Hazardous decomposition products : Depending on conditions, decomposition products may include the following materials: carbon oxides nitrogen oxides halogenated compounds metal oxide/oxides

Section 11. Toxicological information

A. Information on the likely routes of exposure : Not available.

Potential acute health effects

Inhalation : Harmful if inhaled.

Ingestion : Corrosive to the digestive tract. Causes burns.

Skin contact : Causes severe burns. Toxic in contact with skin. May cause an allergic skin reaction.

Eye contact : Causes serious eye damage.

Over-exposure signs/symptoms

Inhalation : No specific data.

Ingestion : Adverse symptoms may include the following: stomach pains

Section 11. Toxicological information

Skin contact : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur

Eye contact : Adverse symptoms may include the following:
pain
watering
redness

B. Health hazards

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
멜라민	LC50 Inhalation Dusts and mists	Rat	>5190 mg/m ³	4 hours
Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine	LD50 Oral	Rat	3161 mg/kg	-
	LD50 Dermal	Rat	>2000 mg/kg	-
1,3-bis(aminomethyl)benzene	LD50 Oral	Rat	>2000 mg/kg	-
	LC50 Inhalation Gas.	Rat	700 ppm	1 hours
	LD50 Dermal	Rat - Male, Female	>3100 mg/kg	-
Trientine	LD50 Oral	Rat	930 mg/kg	-
	LD50 Dermal	Rabbit	1465 mg/kg	-
	LD50 Oral	Rat	1716 mg/kg	-

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

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine	Eyes - Severe irritant	Rabbit	-	-	-
1,3-bis(aminomethyl)benzene	Skin - Irritant	Human	-	-	-
	Skin - Severe irritant	Rat	-	4 hours	4 hours

Conclusion/Summary

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

Eyes : There are no data available on the mixture itself.

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

Sensitization

Product/ingredient name	Route of exposure	Species	Result
Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine	skin	Mouse	Sensitizing
1,3-bis(aminomethyl)benzene	skin	Mouse	Sensitizing
Trientine	skin	Guinea pig	Sensitizing

Section 11. Toxicological information

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

- 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	Classification	Route of exposure	Target organs
CARBON	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Potential chronic health effects

- General** : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
- 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.

Additional information

Causes digestive tract burns. Exposure to amine vapor has been reported to cause transient corneal edema described as blue haze, halo effect, foggy or blurred vision for several hours. This condition is typically temporary and does not cause permanent visual effects. When the proper eye protection specified in Section 8 is worn, exposure is significantly reduced and the condition has not been observed.

Section 11. Toxicological information

Chemical name	Identifiers	GHS Classification
멜라민 Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine	CAS: 108-78-1 EC: 203-615-4 CAS: 68082-29-1	ACUTE TOXICITY (dermal) - Category 3 CARCINOGENICITY - Category 2 SKIN IRRITATION - Category 2
1,3-bis(aminomethyl)benzene	EC: 500-191-5 CAS: 1477-55-0 EC: 216-032-5	SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1A AQUATIC HAZARD (LONG-TERM) - Category 2 CORROSIVE TO METALS - Category 1 ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 SKIN CORROSION - Category 1 EYE IRRITATION - Category 2A SKIN SENSITIZATION - Category 1 AQUATIC HAZARD (LONG-TERM) - Category 3
Trientine	CAS: 112-24-3 EC: 203-950-6	CORROSIVE TO METALS - Category 1 ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 3 SKIN CORROSION - Category 1 SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1
CARBON	CAS: 7440-44-0 EC: 231-153-3	AQUATIC HAZARD (LONG-TERM) - Category 2 SELF-HEATING SUBSTANCES AND MIXTURES - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

Section 12. Ecological information

A. Ecotoxicity

Product/ingredient name	Result	Species	Exposure
멜라민 Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine	Acute EC50 200 mg/l EC10 1.78 mg/l	Daphnia Algae	48 hours 72 hours

B. Persistence and degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine	-	-	Not readily

C. Bioaccumulative potential

Section 12. Ecological information

Product/ingredient name	LogP _{ow}	BCF	Potential
멜라민	-1.22	3.8	Low
1,3-bis(aminomethyl) benzene	0.18	2.69	Low
Trientine	-1.66 to -1.4	-	Low

D. Mobility in soil

Soil/Water partition coefficient : Not available.

E. Other adverse effects

: No known significant effects or critical hazards.

Section 13. Disposal considerations

A. Disposal methods

: The generation of waste should be avoided or minimized 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.

B. Disposal precautions

: 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 spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	UN	IMDG	IATA
A. UN number	UN3066	UN3066	UN3066
B. UN proper shipping name	PAINT	PAINT	PAINT
C. Transport hazard class(es)	8	8	8
D. Packing group	II	II	II
Environmental hazards	No.	No.	No.
E. Marine pollutant substances	Not applicable.	Not applicable.	Not applicable.

Additional information

UN : None identified.

IMDG : None identified.

IATA : None identified.

Section 14. Transport information

F. Special precaution which a user to be aware of or needs to comply with in connection with transport or transportation

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 to IMO instruments : Not applicable.

Section 15. Regulatory information

A. Regulation according to ISHA

ISHA article 117 (Harmful substances prohibited from manufacture) : None of the components are listed.

ISHA article 118 (Harmful substances requiring permission) : None of the components are listed.

Article 2 of Youth Protection Act on Substances Hazardous to Youth : It is not allowed to sell to persons under the age of 19.

Exposure Limits of Chemical Substances and Physical Factors

The following components have an OEL:
1,3-bis(aminomethyl)benzene
CARBON

ISHA Enforcement Regs Annex 19 (Exposure standards established for harmful factors) : None of the components are listed.

ISHA Enforcement Regs Annex 11-5 (Harmful factors subject to Work Environment Measurement) : None of the components are listed.

ISHA Enforcement Regs Annex 22 (Harmful Factors Subject to Special Health Check-up) : None of the components are listed.

Standard of Industrial Safety and Health Annex 12 (Hazardous substances subject to control) : None of the components are listed.

B. Regulation according to Chemicals Control Act

Article 11 (TRI) : None of the components are listed.

Article 18 Prohibited (K-Reach Article 27) : None of the components are listed.

Section 15. Regulatory information

- Article 19 Subject to authorization (K-Reach Article 25)** : None of the components are listed.
- Article 20 Restricted (K-Reach Article 27)** : None of the components are listed.
- Article 20 Toxic Chemicals (K-Reach Article 20)** : Not applicable
- Korea inventory** : All components are listed or exempted.
- Article 39 (Accident Precaution Chemicals)** : None of the components are listed.
- C. Dangerous Materials Safety Management Act** : Not applicable.
- D. Wastes regulation** : Dispose of contents and container in accordance with all local, regional, national and international regulations.
- E. Regulation according to other foreign laws**
- Safety, health and environmental regulations specific for the product** : No known specific national and/or regional regulations applicable to this product (including its ingredients).

Section 16. Other information

- A. References** : Korean Ministry of Environment; Chemical Control Act
Korean Ministry of Labor; Industrial Safety and Health Act
NIER Notice
Registry of Toxic Effects of Chemical Substances (RTECS)
U.S. Environmental Protection Agency, AQUIRE (Aquatic toxicity Information Retrieval) ECOTOX Database System.
- B. First issue date** : 4/24/2025
- C. Date of issue/Date of revision** : **4/20/2026**
- D. Version** : **2.01**
- Prepared by** : EHS
- E. Other**

☑ Indicates information that has changed from previously issued version.

Disclaimer

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 PPG, 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.