

KUMHO PETROCHEMICAL

SAFETY DATA SHEET KUMHO 1793

According to Regulation (EC) No 1907/2006, Annex II, as amended by Regulation (EU) No 453/2010,
COMMISSION REGULATION (EU) 2015/830 of 28 May 2015.

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name KUMHO 1793

REACH registration number -

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

Identified uses Raw materials for rubber products (tires, rubber shoes, sneakers, rubber hoses, belts)

Uses advised against Not available.

1.3. Details of the supplier of the safety data sheet

Supplier OR of KOREA KUMHO Petrochemical Co., Ltd.
KIST Europe Forschungsgesellschaft mbH
Campus E71
66123 Saarbruecken
Germany

Tel: +49 681 9382 334
Fax: +49 681 9382 319
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Manufacturer Korea Kumho Petrochemical Co., Ltd.
64, Sanggae-ro, Nam-gu
Ulsan, Korea
680-180

Tel : +82-52-259-6051~7
Fax : +82-52-259-6053

1.4. Emergency telephone number

Emergency telephone +49 551 19240
GIZ-Nord, Goettingen, Germany (English only)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC/1272/2008)

Physical hazards Not Classified

Health hazards Not Classified

Environmental hazards Aquatic Chronic 2 - H411

2.2. Label elements

Pictogram



Hazard statements

H411 Toxic to aquatic life with long lasting effects.
 EUH208 Contains N-(1,3-Dimethylbutyl)-N'-phenyl-1,4-phenylenediamine. May produce an allergic reaction.

Precautionary statements

P273 Avoid release to the environment.
 P391 Collect spillage.
 P501 Dispose of contents/ container in accordance with national regulations.

Supplementary precautionary statements

P261 Avoid breathing vapour/spray.
 P264 Wash contaminated skin thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P272 Contaminated work clothing should not be allowed out of the workplace.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
 P301+P312 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.
 P302+P352 IF ON SKIN: Wash with plenty of water.
 P321 Specific treatment (see medical advice on this label).
 P330 Rinse mouth.
 P333+P313 If skin irritation or rash occurs: Get medical advice/ attention.
 P363 Wash contaminated clothing before reuse.
 P391 Collect spillage.
 P501 Dispose of contents/ container to ...

2.3. Other hazards

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Styrene-Butadiene Copolymer			66-70%
CAS number: 9003-55-8			
Classification			
Not Classified			
Extracts (petroleum), residual oil solvent			26-28%
CAS number: 64742-10-5		EC number: 265-110-5	REACH registration number: 01-2119488175-30-XXXX
Classification			
Not Classified			
Resin acids and Rosin acids, potassium salts			1-5%
CAS number: 61790-50-9		EC number: 263-142-4	
Classification			
Not Classified			

Facid			1-5%
CAS number: 67701-06-8			
Classification			
Not Classified			
N-(1,3-Dimethylbutyl)-N'-phenyl-1,4-phenylenediamine			<1%
CAS number: 793-24-8	EC number: 212-344-0	REACH registration number: 01-2119485839-15-XXXX	
M factor (Acute) = 10	M factor (Chronic) = 10		
Classification			
Acute Tox. 4 - H302			
Skin Sens. 1 - H317			
Aquatic Acute 1 - H400			
Aquatic Chronic 1 - H410			

The full text for all hazard statements is displayed in Section 16.

Composition comments Monomer is registered instead of Styrene-Butadiene-Styrene copolymer. (Registration number of monomer: 1,3-Butadiene; 01-2119471988-16-****, Styrene; 01-2119457861-32-****)

SECTION 4: First aid measures

4.1. Description of first aid measures

General information	Get medical attention.
Inhalation	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. Get medical attention if any discomfort continues.
Ingestion	Rinse mouth. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. Get medical attention if any discomfort continues.
Skin contact	Remove contaminated clothing and rinse skin thoroughly with water. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues. Wash contaminated clothing before reuse.
Eye contact	Do not rub eye. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Continue to rinse for at least 15 minutes.

4.2. Most important symptoms and effects, both acute and delayed

Skin contact May produce an allergic reaction.

4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor Treatment may vary with condition of victim and specifics of incident.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Water. Foam. Carbon dioxide (CO₂). Dry chemicals.

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards Irritating gases or vapours. Dust or gas may ignite by flames. Fire water contaminated with this chemical must be controlled or prevented from entering environment. Containers can burst violently or explode when heated, due to excessive pressure build-up.

Hazardous combustion products Oxides of carbon. Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

5.3. Advice for firefighters

Protective actions during firefighting Keep up-wind to avoid fumes. Cool containers exposed to flames with water until well after the fire is out. Fight advanced or massive fires from safe distance or protected location. Avoid inhalation of materials or combustion by-products. Move containers from fire area if it can be done without risk. Stay away from ends of tanks.

Special protective equipment for firefighters Use protective equipment appropriate for surrounding materials. Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Wear protective clothing as described in Section 8 of this safety data sheet. Keep upwind. Do not handle broken packages without protective equipment. Provide adequate ventilation.

6.2. Environmental precautions

Environmental precautions Store away from waterwork or drainage system. Prevent run-off from entering ground, storm sewers and ditches which lead to natural waterways. If large spills, call emergency services to get advice.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Small Spillages: Collect spilled material in appropriate container for disposal. Large Spillages: Avoid lowland and keep upwind. Containers with collected spillage must be properly labelled with correct contents and hazard symbol. Disposal to licensed waste disposal site in accordance with local waste disposal authority.

6.4. Reference to other sections

Reference to other sections For personal protection, see Section 8. For waste disposal, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Wear protective clothing as described in Section 8 of this safety data sheet. Provide adequate ventilation. Avoid heat, flames and other sources of ignition. Avoid handling which leads to dust formation. Anti-static boots. Anti-static suit.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Store in accordance with local regulations. Store in tightly-closed, original container in a dry, cool and well-ventilated place. Do not store near heat sources or expose to high temperatures. Earth container and transfer equipment to eliminate sparks from static electricity.

7.3. Specific end use(s)

Specific end use(s) Not available.

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

DNEL

Industry - Inhalation; Short term systemic effects: 56.8 mg/m³
 DNEL Values correspond to N-(1,3-Dimethylbutyl)-N'-phenyl-1,4-phenylenediamine.
 Industry - Inhalation; Long term systemic effects: 7.1 mg/m³
 Industry - Dermal; Short term systemic effects: 8 mg/kg/day
 Industry - Dermal; Long term systemic effects: 1 mg/kg/day

PNEC

2.47 - Fresh water; 0.00037 mg/l
 PNEC Values correspond to N-(1,3-Dimethylbutyl)-N'-phenyl-1,4-phenylenediamine.
 - Marine water; 0.000037 mg/l
 - STP; 0.042 mg/l

8.2. Exposure controls**Protective equipment****Appropriate engineering controls**

Provide adequate general and local exhaust ventilation.

Eye/face protection

The following protection should be worn: Chemical splash goggles.

Hand protection

Wear suitable gloves.

Other skin and body protection

Wear suitable protective clothing.

Hygiene measures

Use engineering controls to reduce air contamination to permissible exposure level. Provide eyewash station and safety shower. Wash hands after handling.

Respiratory protection

If ventilation is inadequate, suitable respiratory protection must be worn. Under frequent use or heavy exposure, respiratory protection may be needed. In case of dust formation, wear respirator with particle filter.

SECTION 9: Physical and Chemical Properties**9.1. Information on basic physical and chemical properties**

Appearance	Solid
Colour	Dark brown.
Odour	Mild.
Odour threshold	Not available. Not available.
pH	Not available. Not available.
Melting point	Not applicable.
Initial boiling point and range	Not applicable.
Flash point	246°C
Evaporation rate	Not applicable.
Upper/lower flammability or explosive limits	Not available.
Other flammability	Not available.
Vapour pressure	Not applicable.
Vapour density	Not applicable.
Relative density	Not applicable.
Solubility(ies)	Insoluble in water.

Partition coefficient	Not applicable.
Auto-ignition temperature	> 388°C
Decomposition Temperature	Not available.
Viscosity	Not applicable.
Explosive properties	Not available.
Oxidising properties	Not available.

9.2. Other information

Molecular weight	≈ 120,000
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SECTION 10: Stability and reactivity**10.1. Reactivity**

Reactivity	Not available.
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10.2. Chemical stability

Stability	Stable at normal ambient temperatures and when used as recommended.
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10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	Will not occur.
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10.4. Conditions to avoid

Conditions to avoid	Avoid heat, flames and other sources of ignition.
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10.5. Incompatible materials

Materials to avoid	Not available.
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10.6. Hazardous decomposition products

Hazardous decomposition products	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours. Oxides of carbon. Hydrocarbons.
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SECTION 11: Toxicological information**11.1. Information on toxicological effects****Acute toxicity - oral**

Notes (oral LD ₅₀)	Not available.
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Acute toxicity - dermal

Notes (dermal LD ₅₀)	Not available.
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Acute toxicity - inhalation

Notes (inhalation LC ₅₀)	Not available.
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Skin corrosion/irritation

Animal data	Not available.
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Serious eye damage/irritation

Serious eye damage/irritation	Not available.
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Germ cell mutagenicity

Genotoxicity - in vitro	Not available.
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Genotoxicity - in vivo	Not available.
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Carcinogenicity

Carcinogenicity	Not available.
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Reproductive toxicity

Reproductive toxicity - fertility Not available.

Reproductive toxicity - development Not available.

Specific target organ toxicity - single exposure

STOT - single exposure Not available.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Not available.

Skin contact May produce an allergic reaction.

Toxicological information on ingredients.**Extracts (petroleum), residual oil solvent****Acute toxicity - oral**Acute toxicity oral (LD₅₀ mg/kg) 5,000.0

Species Rat

Acute toxicity - dermalAcute toxicity dermal (LD₅₀ mg/kg) 3,000.0

Species Rabbit

Acute toxicity - inhalationAcute toxicity inhalation (LC₅₀ vapours mg/l) 5.0

Species Rat

ATE inhalation (vapours mg/l) 5.0

Skin corrosion/irritation

Animal data Erythema/eschar score: Mean erythema score intact skin : 2.42 (at time point 24 and 72hours). Oedema score: Mean edema score intact skin : 2.5 (at time point 24 and 72 hours). Species : rabbit.

Serious eye damage/irritation

Serious eye damage/irritation Not irritating.

Skin sensitisation

Skin sensitisation Buehler test: - Guinea pig: Not sensitising.

Germ cell mutagenicity

Genotoxicity - in vitro Gene mutation:: Negative. Species : Salmonella typhimurium TA 98.

Genotoxicity - in vivo Chromosome aberration: Negative. Species : rat.

Reproductive toxicity

Reproductive toxicity - fertility One-generation study - NOAEL >= 2000 mg/kg/day, Dermal, Rat P

Reproductive toxicity - development

Developmental toxicity: - NOAEL: 2000 mg/kg/day, Dermal, Rat

Resin acids and Rosin acids, potassium salts**Acute toxicity - oral**Acute toxicity oral (LD₅₀ mg/kg) 2,000.0

Species Rat

Acute toxicity - dermalAcute toxicity dermal (LD₅₀ mg/kg) 2,000.0

Species Rat

Acute toxicity - inhalationNotes (inhalation LC₅₀) Endpoint waived according to REACH Annex VII, IX or XI.**Facid****Acute toxicity - oral**Acute toxicity oral (LD₅₀ mg/kg) 2,000.0

Species Rat

Acute toxicity - dermalAcute toxicity dermal (LD₅₀ mg/kg) 2,000.0

Species Rabbit

Acute toxicity - inhalationAcute toxicity inhalation (LC₅₀ vapours mg/l) 0.1621

Species Rat

ATE inhalation (vapours mg/l) 0.1621

N-(1,3-Dimethylbutyl)-N'-phenyl-1,4-phenylenediamine**Acute toxicity - oral**Acute toxicity oral (LD₅₀ mg/kg) 1,005.0

Species Rat

Notes (oral LD₅₀) This test is conducted with male rat.

ATE oral (mg/kg) 1,005.0

Acute toxicity - dermalAcute toxicity dermal (LD₅₀ mg/kg) 7,940.0

Species Rabbit

Acute toxicity - inhalation

Notes (inhalation LC₅₀)	Endpoint waived according to REACH Annex VII, IX or XI.
<u>Skin corrosion/irritation</u>	
Animal data	Not irritating.
<u>Serious eye damage/irritation</u>	
Serious eye damage/irritation	Slightly irritating.
<u>Skin sensitisation</u>	
Skin sensitisation	Guinea pig maximization test (GPMT) - Guinea pig: Sensitising.
<u>Germ cell mutagenicity</u>	
Genotoxicity - in vitro	Gene mutation:: Negative. Species : Salmonella typhimurium TA 98, TA 100, TA 1535, TA 1537.
Genotoxicity - in vivo	Chromosome aberration: Negative. Species : rat.
<u>Carcinogenicity</u>	
Carcinogenicity	NOAEL 1000 ppm, Oral, Rat
<u>Reproductive toxicity</u>	
Reproductive toxicity - fertility	Screening: - NOAEL 100 mg/kg/day, Oral, Rat P
Reproductive toxicity - development	Maternal toxicity: - NOAEL: 50 mg/kg/day, Inhalation, Rat

SECTION 12: Ecological Information

Ecotoxicity There are no data on the ecotoxicity of this product.

12.1. Toxicity

Acute toxicity - fish Not available.

Acute toxicity - aquatic invertebrates Not available.

Acute toxicity - aquatic plants Not available.

Acute toxicity - microorganisms Not available.

Acute toxicity - terrestrial Not available.

Chronic toxicity - fish early life stage Not available.

Short term toxicity - embryo and sac fry stages Not available.

Chronic toxicity - aquatic invertebrates Not available.

Ecological information on ingredients.

Extracts (petroleum), residual oil solvent

Acute toxicity - fish , 96 hours: > = 1000 mg/l, Onchorhynchus mykiss (Rainbow trout)
Endpoint : NOEL.

Acute toxicity - aquatic invertebrates , 48 hours: mg/l, Daphnia magna
Endpoint : NOEL.

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Acute toxicity - aquatic plants	, 72 hours: 34.9 mg/l, Selenastrum capricornutum (Calculated from QSAR approach) Endpoint : NOEL. (based on the growth rate)
Acute toxicity - microorganisms	, 72 hours: > 1000 mg/l, Endpoint : NOEL. Species : Tetrahymena pyriformis. (Calculated from QSAR approach)
Chronic toxicity - fish early life stage	, 28 days: 63 mg/l, Onchorhynchus mykiss (Rainbow trout) Endpoint : NOEL. (Calculated from QSAR approach)
Chronic toxicity - aquatic invertebrates	, 21 days: = 1000 mg/l, Daphnia magna Endpoint : NOEL.

Resin acids and Rosin acids, potassium salts

Acute toxicity - fish	LC50, 96 hours: 60.3 mg/l, Brachydanio rerio (Zebra Fish)
Acute toxicity - aquatic invertebrates	EC ₅₀ , 48 hours: 3.8 mg/l, Daphnia magna
Acute toxicity - aquatic plants	NOEC, 96 hours: 0.0125 mg/l, Scenedesmus subspicatus

Facid

Acute toxicity - fish	LC50, 96 hours: 1354.4 mg/l, Lepomis macrochirus (Bluegill)
Acute toxicity - aquatic invertebrates	EC ₅₀ , 48 hours: > 4.8 mg/l, Daphnia magna
Acute toxicity - aquatic plants	EC ₅₀ , 72 hours: > 0.9 mg/l, Selenastrum capricornutum (based on the growth rate)

N-(1,3-Dimethylbutyl)-N'-phenyl-1,4-phenylenediamine

Acute aquatic toxicity

LE(C)₅₀	0.01 < L(E)C50 ≤ 0.1
M factor (Acute)	10
Acute toxicity - fish	LC50, 96 hours: 0.028 mg/l, Oryzias latipes (Red killifish)
Acute toxicity - aquatic invertebrates	EC ₅₀ , 48 hours: 0.69 mg/l, Daphnia magna
Acute toxicity - aquatic plants	NOEC, 72 hours: 0.23 mg/l, Species : Desmodesmus subspicatus.
Acute toxicity - microorganisms	EC ₅₀ , 3 hours: 420 mg/l, Activated sludge

Chronic aquatic toxicity

NOEC	0.001 < NOEC ≤ 0.01
Degradability	Non-rapidly degradable
M factor (Chronic)	10

Chronic toxicity - fish early life stage	LOEC, : 0.011 mg/l, Oryzias latipes (Red killifish) NOEC, : 0.0037 mg/l, Oryzias latipes (Red killifish) Exposure duration : 30 days.
Chronic toxicity - aquatic invertebrates	NOEC, 21 days: 0.028 mg/l, Daphnia magna LOEC, 21 days: 0.087 mg/l, Daphnia magna
Toxicity to soil	Endpoint waived according to REACH Annex VII, IX or XI.
Toxicity to terrestrial plants	Endpoint waived according to REACH Annex VII, IX or XI.

12.2. Persistence and degradability

Persistence and degradability Not available.

Biodegradation Not available.

Ecological information on ingredients.**N-(1,3-Dimethylbutyl)-N'-phenyl-1,4-phenylenediamine**

Phototransformation	Water - DT ₅₀ : 1.7 hours
Stability (hydrolysis)	pH7 - Half-life : 5 hours 50°C @ °C
Biodegradation	Water - Degradation (%) 2: 28 days Water - Degradation (%) 97: 22 hours

12.3. Bioaccumulative potential

Partition coefficient Not applicable.

Ecological information on ingredients.**N-(1,3-Dimethylbutyl)-N'-phenyl-1,4-phenylenediamine**

Bioaccumulative potential BCF: 1.2 ~ 23, Cyprinus carpio (Common carp)

12.4. Mobility in soil

Mobility Not available.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment This product does not contain any substances classified as PBT or vPvB.

12.6. Other adverse effects

Other adverse effects Not available.

SECTION 13: Disposal considerations**13.1. Waste treatment methods**

General information	Dispose of contents/containers in accordance with local/regional/national/international regulations. Waste is suitable for incineration. If the waste contains designated waste and difficult to separate, incinerate it or reduce the volume following the similar way as incineration. If applicable, pretreat waste with oil/water separation.
Disposal methods	Confirm disposal procedures with environmental engineer and local regulations. Residues and empty containers should be taken care of as hazardous waste according to local and national provisions.

SECTION 14: Transport information**14.1. UN number**

UN No. (ADR/RID) 3077

UN No. (IMDG) 3077

UN No. (ICAO) 3077

14.2. UN proper shipping name

Proper shipping name (ADR/RID) ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (N-(1,3-DIMETHYLBUTYL)-N'-PHEN-YL-P-PHENYLENEDIAMINE)

Proper shipping name (IMDG) ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (N-(1,3-DIMETHYLBUTYL)-N'-PHEN-YL-P-PHENYLENEDIAMINE)

Proper shipping name (ICAO) ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (N-(1,3-DIMETHYLBUTYL)-N'-PHEN-YL-P-PHENYLENEDIAMINE)

14.3. Transport hazard class(es)

ADR/RID class 9

IMDG class 9

ICAO class/division 9

14.4. Packing group

ADR/RID packing group III

IMDG packing group III

ICAO packing group III

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

**14.6. Special precautions for user**

EmS F-A, S-F

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Not applicable.

Annex II of MARPOL 73/78
and the IBC Code

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

Authorisations (Title VII Regulation 1907/2006) No specific authorisations are known for this product.

Restrictions (Title VIII Regulation 1907/2006) No specific restrictions on use are known for this product.

15.2. Chemical safety assessment

A chemical safety assessment has been carried out for Resin acids and Rosin acids, potassium salts (CAS:61790-50-9), Facid (CAS:67701-06-8), Extracts (petroleum), residual oil solvent (CAS:64742-10-5) and N-(1,3-Dimethylbutyl)-N'-phenyl-1,4-phenylenediamine (CAS:793-24-8).

SECTION 16: Other information

Abbreviations and acronyms Precautionary Statements In Full.

used in the safety data sheet P501 Dispose of contents/container in accordance with local/regional/national/international regulation.

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Issued by	KIST Europe
SDS number	20517
SDS status	Approved.
Hazard statements in full	H302 Harmful if swallowed. H317 May cause an allergic skin reaction. H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects. H411 Toxic to aquatic life with long lasting effects. EUH208 Contains N-(1,3-Dimethylbutyl)-N'-phenyl-1,4-phenylenediamine. May produce an allergic reaction.

This 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. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.