

KUMHO PETROCHEMICAL

SAFETY DATA SHEET

NdBR-60

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	NdBR-60
REACH registration number	-
REACH registration notes	Monomer is registered instead of Polybutadiene. (Registration number of monomer: Butadiene: 01-2119471988-16-****)

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

Identified uses	Raw materials for tires, shoes, rubber hoses
Uses advised against	No specific uses advised against are identified.

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 e-mail: reach.it@kist-europe.de
Manufacturer	Korea Kumho Petrochemical Co., Ltd. 287-1, Pyeongyeo-Dong, Yeosu-si Jeollanam-do, Korea

+82 61 688 3060 ~ 9
+82 61 688 3168

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 3 - H412

NdBR-60

2.2. Label elements

Hazard statements	H412 Harmful to aquatic life with long lasting effects.
Precautionary statements	P273 Avoid release to the environment. P501 Dispose of contents/ container in accordance with national regulations.

2.3. Other hazards

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Polybutadiene CAS number: 9003-17-2	60-100%
Classification Not Classified	
BHT CAS number: 128-37-0 M factor (Chronic) = 1	<1% EC number: 204-881-4
Classification Aquatic Chronic 1 - H410	

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

SECTION 4: First aid measures

4.1. Description of first aid measures

General information	Get medical attention.
Inhalation	Move affected person to fresh air at once. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen.
Ingestion	Never give anything by mouth to an unconscious person. Consult a physician for specific advice. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs.
Skin contact	Continue to rinse for at least 15 minutes. Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if irritation persists after washing.
Eye contact	Continue to rinse for at least 15 minutes and get medical attention.

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

General information	Not available.
Inhalation	Not available.
Ingestion	Not available.
Skin contact	Not available.
Eye contact	Not available.

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

NdBR-60

5.1. Extinguishing media

Suitable extinguishing media Extinguish with foam, carbon dioxide, dry powder or water fog.

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. Vapours may be ignited by a spark, a hot surface or an ember. Thermal decomposition or combustion products may include the following substances: Toxic gases or vapours. Containers can burst violently or explode when heated, due to excessive pressure build-up.

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

5.3. Advice for firefighters

Protective actions during firefighting Fight advanced or massive fires from safe distance or protected location. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out. Move containers from fire area if it can be done without risk. Keep up-wind to avoid fumes. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. Avoid heat, flames and other sources of ignition.

Special protective equipment for firefighters Use personal protective equipment as required.

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. Avoid inhalation of vapours and contact with skin and eyes. Keep upwind. Evacuate area. Keep away from sources of ignition - No smoking. Do not handle broken packages without protective equipment. Put on protective equipment before entering danger area.

6.2. Environmental precautions

Environmental precautions Do not discharge into drains or watercourses or onto the ground. Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Large Spillages: Build dikes to control spillage. Avoid lowland and keep upwind. Environmental Manager must be informed of all major spillages. Collect and place in suitable waste disposal containers and seal securely. For waste disposal, see Section 13. Small Spillages: Collect spilled material in appropriate container for disposal. Wash thoroughly after dealing with a spillage.

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 Avoid contact with skin and eyes. For personal protection, see Section 8. Wash thoroughly after handling. Keep separated from incompatible substances.

7.2. Conditions for safe storage, including any incompatibilities

NdBR-60

Storage precautions

Protect against direct sunlight. Do not store near heat sources or expose to high temperatures. Static electricity and formation of sparks must be prevented. Keep away from combustible materials. Store in accordance with local regulations.

7.3. Specific end use(s)

Specific end use(s)

The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

Occupational exposure limits

BHT

Long-term exposure limit (8-hour TWA): ACGIH 2 mg/m³

ACGIH = American Conference of Governmental Industrial Hygienists.

ACGIH

Ingredient comments

No exposure limits known for ingredient(s).

8.2. Exposure controls

Protective equipment



Appropriate engineering controls

Provide adequate general and local exhaust ventilation. Observe any occupational exposure limits for the product or ingredients.

Eye/face protection

The following protection should be worn: Chemical splash goggles. Wear safety glasses with side-shields conforming to EN166.

Hand protection

Wear appropriate chemical resistant gloves. It is recommended that gloves are made of the following material: Polyvinyl chloride (PVC). Rubber (natural, latex).

Other skin and body protection

Wear appropriate chemical resistant clothing.

Hygiene measures

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

Respiratory protection

Under frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.

When take shelter:

- Dust, mist, fume-purifying respiratory protection
- Any air-purifying respirator with a corpuscle filter of high efficiency
- Any respiratory protection with a electromotion fan (for dust, mist, fume-purifying)
- High-efficiency particulate filter respirator attached self-service protector

For Unknown Concentration or Immediately Dangerous to Life or Health:

- Self-contained breathing apparatus (pressure-demand or other positive-pressure mode in combination)
- Supplied-air respirator with full facepiece.

Environmental exposure controls

Avoid releasing into the environment.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

NdBR-60

Appearance	Solid
Colour	Yellow-white.
Odour	Mild.
Odour threshold	Not available. Not available.
pH	Not applicable.
Melting point	Not applicable.
Initial boiling point and range	Not applicable.
Flash point	Not applicable.
Evaporation rate	Not available.
Upper/lower flammability or explosive limits	Not available.
Other flammability	Not available.
Vapour pressure	Not applicable.
Vapour density	Not applicable.
Relative density	0.91 @ 20°C
Solubility(ies)	Insoluble in water.
Partition coefficient	Not applicable.
Auto-ignition temperature	316°C
Decomposition Temperature	Not applicable.
Viscosity	Not applicable.
Explosive properties	Not applicable.
Oxidising properties	Not available.

9.2. Other information

Molecular weight	600,000
-------------------------	---------

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	Not available.
-------------------	----------------

10.2. Chemical stability

Stability	Stable at normal ambient temperatures and when used as recommended.
------------------	---

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	Will not occur.
---	-----------------

10.4. Conditions to avoid

Conditions to avoid	>50 °C. Oxidising materials. Avoid dust close to ignition sources. Avoid exposure to high temperatures or direct sunlight.
----------------------------	--

10.5. Incompatible materials

NdBR-60

Materials to avoid Acid anhydrides. Acid chlorides (Acyl chlorides). Acids, bases, oxidizing agents. Metal or metallic solid. Copper. Stainless steel.

10.6. Hazardous decomposition products

Hazardous decomposition products Carbon monoxide (CO). Carbon dioxide (CO₂). Irritating and toxic fumes, smoke, and gas.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

Notes (oral LD₅₀) Not available.

Acute toxicity - dermal

Notes (dermal LD₅₀) Not available.

Acute toxicity - inhalation

Notes (inhalation LC₅₀) Not available.

Serious eye damage/irritation

Serious eye damage/irritation Not available.

Respiratory sensitisation

Respiratory sensitisation : Not available.

Skin sensitisation

Skin sensitisation - : Not available.

Germ cell mutagenicity

Genotoxicity - in vitro Not available. :

Genotoxicity - in vivo Not available.

Carcinogenicity

Carcinogenicity Not classified to be carcinogenic substance (A1) and carcinogenic substance of presumed (A2) in Public notice. Antioxidant (BHT): IARC group 3, ACGIH group 4

Reproductive toxicity

Reproductive toxicity - development Not relevant.

Specific target organ toxicity - single exposure

STOT - single exposure Not available.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Not available.

Aspiration hazard

Aspiration hazard Not available.

Toxicological information on ingredients.

Polybutadiene

Serious eye damage/irritation

Serious eye damage/irritation Irritation of eyes is assumed. (source : HSDB)

Respiratory sensitisation

NdBR-60

Respiratory sensitisation Irritating to respiratory system. (source : HSDB)

SECTION 12: Ecological Information

Ecotoxicity The product is not expected to be hazardous to the environment.

12.1. Toxicity

Acute toxicity - fish Not available.

Acute toxicity - aquatic invertebrates Not available.

Acute toxicity - aquatic plants Not available.
 , : ,
 IC₅₀, 72 hours: mg/l, Algae

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.

12.2. Persistence and degradability

Persistence and degradability Not available. Not available.

Phototransformation Not available.

Stability (hydrolysis) Not available.

Biodegradation Not available.

12.3. Bioaccumulative potential

Partition coefficient Not applicable.

12.4. Mobility in soil

Mobility Not available.

Henry's law constant 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

NdBR-60

General information	Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority. 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. Dispose of the waste by oneself or contact disposal company.

SECTION 14: Transport information

General	The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, ADR/RID).
----------------	--

14.1. UN number

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

Not applicable.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

No.

14.6. Special precautions for user

Not applicable.

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

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

Abbreviations and acronyms used in the safety data sheet	Precautionary Statements In Full. P501 Dispose of contents/container in accordance with local/regional/national/international regulation. HSDB : Hazardous Substance Data Bank
Issued by	KIST Europe
Revision date	03/01/2018
Revision	1
SDS status	Approved.

NdBR-60

Hazard statements in full	H410 Very toxic to aquatic life with long lasting effects. H412 Harmful to aquatic life with long lasting effects.
----------------------------------	---

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.