

Safety data sheet
according to OSHA Hazard Communication
Standard (29 CFR 1910.1200)



Version: 1.0 (US)

Revision date: 01/08/2025

Print date: 01/08/2025

SECTION 1: Product and company identification

1.1. Product Identifier

Trade Name: NAV-60

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

Recommended uses:

Production of rubber articles.
Industrial use.

Uses advised against:

This product must not be used for purposes other than those recommended without first seeking the advice of the supplier.

1.3. Details of the supplier of the safety data sheet

Company and address:

AVK GUMMI A/S
Mosegaardsvej 1
DK-8670 Laasby
Tel: +45 8695 1311
www.avkgummi.dk

Contact person and e-mail:

sds@avkgummi.dk

1.4. Emergency telephone number

Poison Control Center 1-800-222-1222

Use your national or local emergency number – See SECTION 4 “First aid measures”.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to GHS:

Skin sensitization, category 1
Chronic aquatic toxicity, category 2

H317: May cause an allergic skin reaction.
H411: Toxic to aquatic life with long lasting effects.

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2.2. Label elements

Labelling according to GHS:

Hazard pictograms	:	 
Signal word	:	Warning
Hazard statements	:	H317 May cause an allergic skin reaction. H411 Toxic to aquatic life with long lasting effects.
Precautionary statements	:	P273 Avoid release to the environment. P280 Wear protective gloves/protective clothing/eye protection. P302 + P352 IF ON SKIN: Wash with plenty of water. P333 + P313 If skin irritation or rash occurs: Get medical advice/attention. P362 + P364 Take off contaminated clothing and wash it before reuse.

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable.

3.2. Mixtures

This product is a mixture.

Substance	CAS-No.	GHS-classification	Content (%)	Note
Carbon black	1333-86-4	-	< 40	1
Silicon dioxide	7631-86-9	-	< 30	1
Zinc oxide	1314-13-2	Aquatic Acute 1, H400 Aquatic Chronic 1, H410	< 10	1
2-(Morpholinothio)benzothiazole	102-77-2	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Chronic 2, H411	< 10	-
Disulfiram	97-77-8	Acute Tox. 4 (oral), H302 Skin Sens. 1, H317 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	< 5	1
N-isopropyl-N'-phenyl-p-phenylenediamine	101-72-4	Acute Tox. 4 (oral), H302 Skin Sens. 1, H317 (C ≥ 0.1 %) Aquatic Acute 1, H400 Aquatic Chronic 1, H410	< 5	-

1) The substance has a national exposure limit.

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For full text of H-statements, see SECTION 16.

SECTION 4: First-aid measures

4.1. Description of first aid measures

Inhalation:

Seek fresh air.
Seek medical advice if symptoms persist.

Ingestion:

Wash out mouth thoroughly and drink 1-2 glasses of water in small sips.
Seek medical advice in case of persistent discomfort.

Skin contact:

Remove contaminated clothing.
Wash the skin thoroughly with water.
If skin irritation or rash occurs: Get medical advice/attention.
If molten material comes in contact with the skin, cool under running stream of water. DO NOT attempt to remove the material from skin. Removal could result in severe tissue damage. Seek medical attention immediately.

Eye contact:

Remove contact lenses, if present and easy to do.
Flush with water (preferably using eye wash equipment) until irritation subsides.
Seek medical advice if symptoms persist.

Additional information:

When obtaining medical advice, show the safety data sheet or label.

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

Symptoms: May cause an allergic skin reaction. May cause slight irritation to the eyes.

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

Treatment: Treat symptomatically and supportively.

SECTION 5: Fire-fighting measures

5.1. Extinguishing media

Suitable extinguishing media: Powder, foam, carbon dioxide or water mist.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media: Do not use high volume water jet.

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5.2. Special hazards arising from the substance or mixture

Exposure to decomposition products may cause a health hazard.
Do not allow run-off from firefighting to enter drains or water courses.

5.3. Advice for firefighters

If there is a risk of exposure to vapour and flue gases, a self-contained breathing apparatus must be worn.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

See SECTION 8 for type of protective equipment.
Avoid contact with skin, eyes and clothing.
Ensure adequate ventilation.

6.2. Environmental precautions

Avoid release to the environment.
Notify proper authorities in case of contamination of soil or aquatic environment or discharge to drains.

6.3. Methods and material for containment and cleaning up

Collect mechanically and dispose to suitable and properly labelled waste containers.
See SECTION 13 for instructions on disposal.

6.4. Reference to other sections

See SECTION 7 for information on safe handling.
See SECTION 8 for information on personal protection equipment.
See SECTION 13 for instructions on disposal.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

See SECTION 8 for information about precautions for use and personal protective equipment.
Do not eat, drink or smoke when using this product.
Ensure adequate ventilation.
Avoid contact with skin, eyes and clothing.
Wash hands before breaks, before using restroom facilities, and at the end of work.
Take off contaminated clothing and wash it before reuse.
Contaminated work clothing should not be allowed out of the workplace

7.2. Conditions for safe storage, including any incompatibilities

The product should be stored safely, out of reach of children and away from food, animal feeding stuffs, medicines, etc.
Store product in properly labelled and tightly sealed container.

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Keep in cool, dry, and ventilated area.

7.3. Specific end use(s)

See application SECTION 1.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits (US):

Substance	TWA (mg/m ³)	STEL (mg/m ³)
Carbon black		
OSHA	3.5	-
NIOSH	3.5(1)	-
Silica, amorphous		
OSHA	20(2)(3)	-
NIOSH	6	-
Zinc oxide (dust)		
OSHA	15	-
NIOSH	5	15(4)
Disulfiram		
NIOSH	2	-

(1) in presence of PAHs: limit PAHs to 0.1 mg/m³ TWA (detected as cyclohexane soluble extract)

(2) mppcf

(3) mppcf × 35.3 = million particles per cubic meter = particles per c.c.

(4) ceiling limit value (15 min)

DNEL-values:

	Workers	Consumers
DNEL Carbon black		
Inhalation - Chronic Systemic	2 mg/m ³	-
Inhalation - Chronic Local	2 mg/m ³	-
DNEL 2-(Morpholinothio)benzothiazole		
Inhalation - Chronic Systemic	7 mg/m ³	1.7 mg/m ³
Inhalation - Acute Systemic	7 mg/m ³	1.7 mg/m ³
Inhalation - Chronic Local	7 mg/m ³	1.7 mg/m ³
Inhalation - Acute Local	7 mg/m ³	1.7 mg/m ³
Dermal - Chronic Systemic	67 mg/kg bw/day	33 mg/kg bw/day
Dermal - Acute Systemic	534 mg/kg bw/day	266 mg/kg bw/day
Oral - Chronic Systemic	-	0.5 mg/kg bw/day
Oral - Acute Systemic	-	4 mg/kg bw/day
DNEL Disulfiram		
Inhalation - Chronic Systemic	0.29 mg/m ³	52 µg/m ³
Dermal - Chronic Systemic	2.055 mg/kg bw/day	1.028 mg/kg bw/day
Oral - Chronic Systemic	-	15 µg/kg bw/day

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DNEL N-isopropyl-N'-phenyl-p-phenylendiamine		
Inhalation - Chronic Systemic	0.8 mg/m ³	0.2 mg/m ³
Inhalation - Acute Systemic	6.4 mg/m ³	1.6 mg/m ³
Dermal - Chronic Systemic	0.113 mg/kg bw/day	0.06 mg/kg bw/day
Dermal - Acute Systemic	0.9 mg/kg bw/day	0.5 mg/kg bw/day
Oral - Chronic Systemic	-	0.06 mg/kg bw/day
Oral - Acute Systemic	-	0.5 mg/kg bw/day

PNEC-values:

PNEC Carbon black	
Freshwater	5 mg/L
Marine water	5 mg/L
PNEC Zinc oxide	
Freshwater	17.9 µg/L
Marine water	9 µg/L
Microorganisms in sewage treatment plants (STP)	124.5 µg/L
Freshwater sediments	182.8 mg/kg sediment dw
Marine sediments	201.9 mg/kg sediment dw
Soil (agricultural)	103.4 mg/kg soil dw
PNEC 2-(Morpholinothio)benzothiazole	
Freshwater	0.004 mg/L
Marine water	0 mg/L
Microorganisms in sewage treatment plants (STP)	1000 mg/L
Freshwater sediments	0.298 mg/kg sediment dw
Marine sediments	0.03 mg/kg sediment dw
Soil (agricultural)	0.057 mg/kg soil dw
PNEC Disulfiram	
Freshwater	0 mg/L
Marine water	0 mg/L
Freshwater sediments	0.021 mg/kg sediment dw
Marine sediments	0.002 mg/kg sediment dw
Soil (agricultural)	0.004 mg/kg soil dw
PNEC N-isopropyl-N'-phenyl-p-phenylendiamine	
Freshwater	0.28 µg/L
Marine water	0.028 µg/L
Microorganisms in sewage treatment plants (STP)	0.344 mg/L
Freshwater sediments	0.008 mg/kg sediment dw
Marine sediments	0.001 mg/kg sediment dw
Soil (agricultural)	0.001 mg/kg soil dw

8.2. Exposure controls

There are no exposure scenarios for this product.

Appropriate engineering controls:

Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines.

Refer to protective measures listed in SECTION 7.

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Personal protective equipment:

- Hand protection: Wear protective gloves made of nitrile rubber.
- Other skin protection: Protective work clothing.
- Eye/face protection: Safety glasses.
- Respiratory protection: Ensure adequate ventilation.
Avoid breathing process fumes.

Environmental exposure controls:

Ensure compliance with local regulations for emissions.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Solid
Colour:	Black
Odour:	-
Melting point/ Freezing Point (°C):	-
Boiling point or initial boiling point and boiling range (°C):	-
Flammability:	-
Lower and upper explosion limit (vol-%):	-
Flash point (°C):	-
Auto-ignition temperature (°C):	-
Decomposition temperature (°C):	-
pH:	Not applicable (Insoluble in water)
Kinematic viscosity (mm ² /s):	-
Solubility:	Practically insoluble
Partition coefficient n-octanol/water (log value):	-
Vapour pressure:	-
Density and/or relative density:	1.17 ± 0.01 g/mL
Relative vapour density:	-
Particle characteristics:	-

9.2. Other information

None.

SECTION 10: Stability and reactivity

10.1. Reactivity

No data.

10.2. Chemical stability

The product is stable when used in accordance with the supplier's directions.

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10.3. Possibility of hazardous reactions

None known.

10.4. Conditions to avoid

None known.

10.5. Incompatible materials

None known.

10.6. Hazardous decomposition products

No special precautions regarding contact with other materials at the recommended storage conditions.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

This product has not been tested. Judgements on the expected toxicity of this product have been made based upon consideration of its components.

Acute toxicity:

Product

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

Components

Substance	Test (species)	Result	Guideline
Carbon black			
Oral	LD50 (Rat)	>8000 mg/kg	OECD 401
Inhalation	LC50/4h (Rat)	>4.6 mg/m ³	OECD 403
Silicon dioxide			
Oral	LD50 (Rat)	>5000 mg/kg	OECD 401
Dermal	LD50 (Rabbit)	>2000 mg/kg	OECD 402
Inhalation	LC0/4h (Rat)	>140 to >2000 mg/m ³	OECD 403
Zinc oxide			
Oral	LD50 (Rat)	>2000 mg/kg	OECD 401
Dermal	LD50 (Rat)	>2000 mg/kg	OECD 402
Inhalation	LC50/4h (Rat)	>5.7 mg/L	OECD 403
2-(Morpholinothio)benzothiazole			
Oral	LD50 (Rat)	>7940mg/kg	Other
Dermal	LD50 (Rabbit)	>7940mg/kg	Other
Disulfiram			
Oral	LD50 (Rat)	1860 mg/kg	OECD 401
Dermal	LD50 (Rabbit)	>2000 mg/kg	OECD 402
Inhalation	LC50/4h (Rat)	4.42 mg/L	Other
N-isopropyl-N'-phenyl-p-phenyldiamin			
Oral	LD50 (Rat)	522 mg/kg	OECD 401
Dermal	LD50 (Rabbit)	7940 mg/kg	Other

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Skin corrosion/irritation:

Product

May slightly irritate the skin.

Components

Substance

2-(Morpholinothio)benzothiazole
N-isopropyl-N'-phenyl-p-phenylendiamin

Assessment:

Irritates the skin
Slightly irritating

Serious eye damage/irritation:

Product

May slightly irritate the eyes.

Components

Substance

2-(Morpholinothio)benzothiazole
N-isopropyl-N'-phenyl-p-phenylendiamin

Assessment:

Irritates the eyes
Slightly irritating

Respiratory or skin sensitisation:

Product

May cause an allergic skin reaction.

Components

Contains 2-(Morpholinothio)benzothiazole, Disulfiram and N-isopropyl-N'-phenyl-p-phenylendiamin.
May produce an allergic reaction.

Germ cell mutagenicity:

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

Carcinogenicity:

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

Reproductive toxicity:

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

STOT-single exposure:

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

STOT-repeated exposure:

Product

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

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Components

Substance

Disulfiram

Assessment:

May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard:

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

11.2. Information on other hazards

Test data are not available.

SECTION 12: Ecological information

12.1. Toxicity

Product

Toxic to aquatic life with long lasting effects.

Components

Substance	Test	Result
Carbon black		
Daphnia	EC50 (24 h)	>5600 mg/L
Algae	EC50 (72 h)	>10000 mg/L
Fish	LC0 (96 h)	>1000 mg/L
Silicon dioxide		
Daphnia	EC50 (24 h)	>1000 mg/L
Algae	EC50 (72 h)	>10000 mg/L
Fish	LC0 (96 h)	>10000 mg/L
Zinc oxide		
Daphnia	EC50 (48 h)	>7.5 mg/L
Algae	EC50 (24 h)	>2.57 mg/L
Fish	LC50 (96 h)	>1.793 mg/L
2-(Morpholinothio)benzothiazole		
Daphnia	LC50 (48 h)	2.84 mg/L
Algae	EC50 (72 h)	0.5 mg/L
Fish	LC50 (96 h)	0.31 mg/L
Disulfiram		
Daphnia	EC50 (48 h)	>0.15 mg/L
Algae	EC50 (96 h)	>1.8 mg/L
Fish	LC50 (96 h)	0.067 mg/L
N-isopropyl-N'-phenyl-p-phenylendiamin		
Daphnia	EC50 (48 h)	0.23 mg/L
Algae	ErC50 (48 h)	2.6 mg/L
Fish	LC50 (96 h)	0.028 mg/L

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12.2. Persistence and degradability

Product

Test data are not available for the complete mixture.

Components

Substance	Biodegradability	Result	Guideline
2-(Morpholinothio)benzothiazole	Not readily biodegradable	28 days 0%	Other
Disulfiram	Not readily biodegradable	60 days 58%	OECD 301 B
N-isopropyl-N'-phenyl-p-phenyldiamin	Not readily biodegradable	32 days 18.9%	OECD 301 B

12.3. Bioaccumulative potential

Test data are not available for the complete mixture.

12.4. Mobility in soil

Test data are not available for the complete mixture.

12.5. Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6. Endocrine disrupting properties

Test data are not available.

12.7. Other adverse effects

Test data are not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product:

Dispose of in accordance with Federal, State, and local regulations on waste and hazardous waste.
Store waste in containers provided for this purpose.
Do not dump in drains, water sheets or the ground.

Contaminated packaging:

Packaging that cannot be cleaned are to be disposed of in the same manner as the product.
Empty packaging and residues can be disposed with household waste.

SECTION 14: Transport information

14.1. UN number or ID number

UN 3077

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14.2. UN proper shipping name

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (zinc oxide, 2-(Morpholinothio)benzothiazole, disulfiram, N-isopropyl-N'-phenyl-p-phenyldiamin)

14.3. Transport hazard class(es)

9

14.4. Packing group

III

14.5. Environmental hazards

Marine pollutant: Yes

14.6. Special precautions for user

See SECTION 8 for type of protective equipment.
Shipping in package sizes of less than 5 kg may lead to a non-regulated classification.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not relevant.

SECTION 15: Regulatory information

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

National and local regulations must be observed.

15.2. Chemical safety assessment

None.

SECTION 16: Other information

According to OSHA Hazard Communication Standard (29 CFR 1910.1200).

Other information:

Full text of H-phrases as mentioned in SECTION 2+3:

H302 Harmful if swallowed.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H373 May cause damage to organs through prolonged or repeated exposure.
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.

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Classification of mixtures and used evaluation methods according to GHS:

Classification	Evaluation method
Skin sensitization, category 1; H317	Calculation method
Chronic aquatic toxicity, category 2; H411	Calculation method

Abbreviations and acronyms used in the safety data sheet:

ADR: Agreement concerning the International Carriage of Dangerous Goods by Road

bw: Body weight

CAS-Number: Chemical Abstracts Service number.

DNEL: Derived No Effect Level.

dw: Dry weight

EC50: The effective concentration of substance that causes 50% of the maximum response.

GHS: Globally Harmonized System

IMDG: International Maritime Dangerous Goods

IMO: International Maritime Organization

LC0: Lethal Concentration to 0 % of a test population.

LC50: Lethal Concentration to 50 % of a test population.

LD50: Lethal Dose to 50% of a test population (Median Lethal Dose).

NIOSH: National Institute for Occupational Safety and Health

OSHA: Occupational Safety and Health Administration

PBT: Persistent, Bioaccumulative and Toxic.

PNEC(s): Predicted No Effect Concentration(s).

REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals; Regulation (EC) No 1907/2006.

STEL: Short Term Exposure Limit

STOT: Specific Target Organ Toxicity.

TSCA: Toxic Substances Control Act

TWA: Time-Weighted Average

vPvB: Very Persistent and Very Bioaccumulative.

Further information:

Contact Point: AVK GUMMI A/S

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information applies only to this specific product (mentioned in SECTION 1) and may not be valid if used in combination with other chemicals/products.