

**1 Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier****Trade name:** 4-NITROBENZALDEHYDE \geq 98%, for synthesis**Article number:** 5667**CAS Number:**

555-16-8

EC number:

209-084-5

Registration number

A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

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

No further relevant information available.

Application of the substance / the preparation

Laboratory chemical

1.3 Details of the supplier of the safety data sheet**Manufacturer/Supplier:**

Carl Roth GmbH + Co. KG

Schoemperlenstraße 3-5

76185 Karlsruhe

Germany

Telefon: +49/(0)721 5606-0

Telefax: +49/(0)721 5606-149

E-Mail: sicherheit@carlroth.de

Further information obtainable from: Department Health, Safety and Environment**1.4 Emergency telephone number:**

Poison Centre Munich

Telefon +49/(0)89 19240

2 Hazards identification**2.1 Classification of the substance or mixture****Classification according to Regulation (EC) No 1272/2008**

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2 H319 Causes serious eye irritation.

STOT SE 3 H335 May cause respiratory irritation.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

Xi; Irritant

R36/37/38: Irritating to eyes, respiratory system and skin.

Additional information: Note, not yet fully tested.**2.2 Label elements****Labelling according to Regulation (EC) No 1272/2008**

The substance is classified and labelled according to the CLP regulation.

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Hazard pictograms

GHS07

Signal word Warning**Hazard statements**

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

Precautionary statements

P280 Wear protective gloves / eye protection.

P302+P352 IF ON SKIN: Wash with plenty of soap and water.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Other hazards

All chemicals are potentially dangerous. They are therefore only be handled by specially trained personnel with the necessary care.

Results of PBT and vPvB assessment**PBT:** Not applicable.**vPvB:** Not applicable.

3 Composition/information on ingredients

3.1 Chemical characterization: Substances**CAS No. Description**

555-16-8 4-nitrobenzaldehyde

Identification number(s)**EC number:** 209-084-5**Formula:** C₇H₅NO₃**Molar mass [g/mol]:** 151,12

4 First aid measures

**4.1 Description of first aid measures****General information:**

Remove any clothing soiled by the product.

After inhalation:

Supply fresh air.

If breathing is difficult, give oxygen. Seek medical treatment.

After skin contact:

Wash with water and soap.

If there is any trouble seek medical help.

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After eye contact:

Rinse opened eye for 10 minutes under running water. If symptoms persist, consult a doctor.

After swallowing:Rinse out mouth and then drink water.
If there is any trouble seek medical help.**4.2 Most important symptoms and effects, both acute and delayed**Irritations
coughing
Dyspnoea**4.3 Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

5 Firefighting measures**5.1 Extinguishing media****Suitable extinguishing agents:**Use fire extinguishing methods suitable to surrounding conditions.
CO₂, powder, foam or water spray.**For safety reasons unsuitable extinguishing agents:**

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

In the event of fire development of hazardous combustion gases or vapours possible.

In case of fire, the following can be released:Nitrogen oxides (NO_x)
Carbon monoxide and carbon dioxide**5.3 Advice for firefighters****Protective equipment:**Wear self-contained respiratory protective device.
In order to avoid contact with skin, keep a safety distance and wear suitable protective clothing.**6 Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**Avoid contact with the eyes and skin.
Do not breathe dust.**6.2 Environmental precautions**

Do not allow product to reach sewage system or any water course.

6.3 Methods and material for containment and cleaning upPick up mechanically.
Dispose of the material collected according to regulations.**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 disposal information.**7 Handling and storage****7.1 Precautions for safe handling**

Provide suction extractors if dust is formed.

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Information about fire - and explosion protection:

Risk of dust explosion if enriched with fine dust in the presence of air.

7.2 Conditions for safe storage, including any incompatibilities**Storage:****Requirements to be met by storerooms and receptacles:**

No special requirements.

Information about storage in one common storage facility:

Store away from foodstuffs.

Further information about storage conditions:

Keep container tightly sealed.

Store in dry conditions.

Recommended storage temperature: +15 °C - +25 °C**7.3 Specific end use(s)**

No further relevant information available.

8 Exposure controls/personal protection**Additional information about design of technical facilities:**

No further data; see item 7.

8.1 Control parameters**Ingredients with limit values that require monitoring at the workplace:** Not required.**Additional information:**

The lists valid during the making were used as basis.

8.2 Exposure controls**Personal protective equipment:****General protective and hygienic measures:**

The usual precautionary measures are to be adhered to when handling chemicals.

Avoid contact with the eyes and skin.

Wash hands before breaks and at the end of work.

Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Respiratory protection:

Particle filter required when dusts are generated.

Recommended filter typ:

Filter P1 (colour code: white)

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Protection of hands:

Protective gloves

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves

Nitrile, thickness: ≥ 0.11 mm

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection:

Tightly sealed goggles

Body protection:

Protective work clothing

9 Physical and chemical properties

9.1 Information on basic physical and chemical properties**General Information****Appearance:**

Form:	Crystalline powder
Colour:	Yellowish
Odour:	No information available.
Odour threshold:	No information available.

pH-value: No information available.

Change in condition

Melting point/Melting range:	101-104 °C
Boiling point/Boiling range:	No information available.

Flash point: No information available

Flammability (solid, gaseous): No information available

Ignition temperature: No information available

Decomposition temperature: No information available

Self-igniting: No information available

Danger of explosion: The product is not explosive. However, dust may form an explosive mixture with air.

Explosion limits:

Lower: No information available.

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Upper:	No information available.
Oxidizing properties:	No information available.
Vapour pressure:	No information available
Density:	
Relative density	No Information available.
Vapour density	No information available
Evaporation rate	No information available
Solubility in / Miscibility with water at 25 °C:	2.34 g/l
Partition coefficient (n-octanol/water):	1.56 log POW (exp.)
Viscosity:	
Dynamic:	No information available.
Kinematic:	No information available.
9.2 Other information	No further relevant information available.

10 Stability and reactivity

10.1 Reactivity See section 10.3

10.2 Chemical stability

Thermal decomposition / conditions to be avoided:

No decomposition if used and stored according to specifications.

10.3 Possibility of hazardous reactions

Strong reaction possible with:

Strong oxidizing agents

Strong bases

strong reducing agents

10.4 Conditions to avoid

No information available.

10.5 Incompatible materials:

No information available.

10.6 Hazardous decomposition products:

In case of fire: see item 5.

11 Toxicological information

11.1 Information on toxicological effects

Acute toxicity:

LD/LC50 values relevant for classification:

Oral	LD50	4700 mg/kg (rat) (TOXNET)
Dermal	LD50	16000 mg/kg (rat) (TOXNET)

Primary irritant effect:

on the skin:

Irritant to skin and mucous membranes.

on the eye:

Irritating effect.

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after inhalation:

Irritations in the respiratory tract, coughing, dyspnoea.

Sensitization:

No sensitizing effects known.

CMR effects:**Germ cell mutagenicity:**

No information available.

Carcinogenicity:

No information available.

Reproductive toxicity:

No information available.

Aspiration hazard:

No aspiration toxicity classification.

Specific target organ toxicity - single exposure May cause respiratory irritation.**Specific target organ toxicity - repeated exposure**

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Additional toxicological information:

The following applies to aldehydes in general: irritations after contact with eyes and skin. Mucosal irritations, coughing, and dyspnoea after inhalation.

Further information:

The product should be handled with the care usual when dealing with chemicals.

12 Ecological information**12.1 Toxicity****Aquatic toxicity:**

Quantitative data on the ecological effect of this product are not available.

12.2 Persistence and degradability

No further relevant information available.

12.3 Bioaccumulative potential

Due to the distribution coefficient n-octanol/water an accumulation in organisms is not expected (log POW ≤4).

12.4 Mobility in soil

No further relevant information available.

Ecotoxicological effects:**Remark:**

Do not allow to enter waters, waste water, or soil!

12.5 Results of PBT and vPvB assessment**PBT:** Not applicable.**vPvB:** Not applicable.**12.6 Other adverse effects**

No further relevant information available.

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13 Disposal considerations

Waste treatment methods

Recommendation

The disposal is regionally differently regulated, therefore the kind of disposal is to be inquired at the responsible authorities.

Uncleaned packaging:

Recommendation:

Disposal according to official regulations.

14 Transport information

14.1 UN-Number	
ADR, ADN, IMDG, IATA	Void
14.2 UN proper shipping name	
ADR, ADN, IMDG, IATA	Void
14.3 Transport hazard class(es)	
ADR, ADN, IMDG, IATA Class	Void
14.4 Packing group	
ADR, IMDG, IATA	Void
14.5 Environmental hazards:	
Marine pollutant:	No
14.6 Special precautions for user	Not applicable.
14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
UN "Model Regulation":	-

15 Regulatory information

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

National regulations:

Information about limitation of use: Employment restrictions concerning juveniles must be observed.

Waterhazard class:

Water hazard class 2 (Self-assessment): hazardous for water.

15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

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Department issuing MSDS: Department: Health, Safety and Environment**Contact:** Frau Weckemann**Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

LD50*: Lethal Dose, 50 percent (Not relevant for classification)

LD50*: Lethal Concentration, 50 percent (Not relevant for classification)

GB