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

1.1 Product identifier

Trade name 4-Nitrobenzaldehyde

Stock number: A11655, L04199
CAS Number: 555-16-8
EC number: 209-084-5

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

Identified use: SU24 Scientific research and development

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:
Alfa Aesar
Avocado Research Chemicals, Ltd.
Shore Road
Port of Heysham Industrial Park
Heysham Lancashire LA3 2XY
United Kingdom

Office Tel: +44 (0) 1524 850506
Office Fax: +44 (0) 1524 850608
Email: uktech@alfa.com
www.alfa.com

Informing department: Product safety department.

1.4 Emergency telephone number:
Call Carechem 24 at +44 (0) 1865 407333 (English only); +44 (0) 1235 239670 (Multi-language)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

GHS07
Eye Irrit. 2 H319 Causes serious eye irritation.
Skin Sens. 1 H317 May cause an allergic skin reaction.
Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

Other hazards that do not result in classification
No information known.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 The substance is classified and labelled according to the CLP regulation.

Hazard pictograms

GHS07

Signal word Warning
Hazard statements
H319 Causes serious eye irritation.
H317 May cause an allergic skin reaction.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P363 Wash contaminated clothing before reuse.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards

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

SECTION 3: Composition/information on ingredients

3.1 Substances

CAS# Designation: 555-16-8 4-Nitrobenzaldehyde
Identification number(s):
EC number: 209-084-5

SECTION 4: First aid measures

4.1 Description of first aid measures

After inhalation
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
Seek immediate medical advice.

After skin contact
Instantly wash with water and soap and rinse thoroughly.
Seek immediate medical advice.

After eye contact Rinse opened eye for several minutes under running water. Then consult doctor.
After swallowing Seek medical treatment.

4.3 Indication of any immediate medical attention and special treatment needed
No further relevant information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing agents: CO2, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

5.2 Special hazards arising from the substance or mixture

If this product is involved in a fire, the following can be released:
Carbon monoxide and carbon dioxide
Nitrogen oxides (NOx)

5.3 Advice for firefighters

Protective equipment: Wear self-contained breathing apparatus.

(CONTD. ON PAGE 2)
SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Wear protective clothing. Keep unprotected persons away.
Ensure adequate ventilation.

6.2 Environmental precautions: Do not allow product to reach sewage system or water bodies.

6.3 Methods and material for containment and cleaning up: Collect mechanically.
Prevention of secondary hazards: No special measures required.

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 information on disposal.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Handle under dry protective gas.
Keep containers tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation/evaporation at the workplace.

Information about protection against explosions and fires: No information known.

7.2 Conditions for safe storage, including any incompatibilities
Storage
Requirements to be met by storerooms and containers: No special requirements.
Information about storage in one common storage facility:
Store away from air.
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.

7.3 Specific end use(s)
No further relevant information available.

SECTION 8: Exposure controls/personal protection

Additional information about design of technical systems:
Property operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

8.1 Control parameters
Components with critical values that require monitoring at the workplace:
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

Additional information: No data.

8.2 Exposure controls
Personal protective equipment
General protective and hygienic measures
The usual precautionary measures should be adhered to in handling the chemicals.
Keep away from foodstuffs, beverages and food.

Breathing equipment: Use breathing protection with high concentrations.

Protection of hands:
Check protective gloves prior to each use for their proper condition.
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.

Material of gloves:
Impervious gloves
Penetration time of glove material (in minutes) Not determined

Eye protection:
Safety glasses
Face protection

Body protection: Protective work clothing.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties
General Information
Appearance:
Form: Crystalline powder
Colour: Yellow
Smell: Not determined
Odour threshold: Not determined.

pH-value: Not applicable.

Change in condition
Melting point/Melting range: 104-106 °C
Boiling point/Boiling range: Not determined
Sublimation temperature / start: Not determined
Inflammability (solid, gaseous) Not determined.
Ignition temperature: Not determined
Decomposition temperature: Not determined
Self-inflammability: Not determined.

Danger of explosion: Not determined.

Critical values for explosion:
Lower: Not determined
Upper: Not determined

Steam pressure: Not applicable.
Density at 20 °C 1.496 g/cm³
Relative density: Not determined.
Vapour density: Not applicable.
Evaporation rate: Not applicable.
Solubility in / Miscibility with
Water: Not determined
Partition coefficient (n-octanol/water): Not determined.
Viscosity:
dynamic: Not applicable.
SECTION 10: Stability and reactivity

10.1 Reactivity: No information known.
10.2 Chemical stability: Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions: Reacts with strong oxidising agents.
10.4 Conditions to avoid: No further relevant information available.
10.5 Incompatible materials:
   - Air
   - Oxidising agents
10.6 Hazardous decomposition products:
   - Carbon monoxide and carbon dioxide
   - Nitrogen oxides (NOx)

SECTION 11: Toxicological information

11.1 Information on toxicological effects:
   - Acute toxicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.
   - LD/LC50 values that are relevant for classification:
     - Oral LD50: 4700 mg/kg (rat)
   - Skin irritation or corrosion: May cause irritation.
   - Eye irritation or corrosion: Causes serious eye irritation.
   - Sensitization: May cause an allergic skin reaction.
   - Germ cell mutagenicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for this substance.
   - Carcinogenicity: No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.
   - Reproductive toxicity:
     - Germ cell mutagenicity
     - The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for this substance.
     - Carcinogenicity
     - No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.
   - Specific target organ system toxicity - repeated exposure: No effects known.
   - Specific target organ system toxicity - single exposure: No effects known.
   - Aspiration hazard: No effects known.
   - Subacute to chronic toxicity: No effects known.
   - Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

SECTION 12: Ecological information

12.1 Toxicity:
   - Aquatic toxicity: No further relevant information available.
12.2 Persistence and degradability: No further relevant information available.
12.3 Bioaccumulative potential: No further relevant information available.
12.4 Mobility in soil: No further relevant information available.
12.5 Ecological effects:
   - Remark: Harmful to aquatic organisms.
   - Additional ecological information:
     - General notes:
       - Water hazard class 1 (Self-assessment): slightly hazardous for water.
       - Do not allow undiluted product or large quantities to reach ground water, water course or sewage system.
       - May cause long lasting harmful effects to aquatic life.
       - Avoid transfer into the environment.
   - Harmful to aquatic organisms.
12.6 Results of PBT and vPvB assessment:
   - PBT: Not applicable.
   - vPvB: Not applicable.

SECTION 13: Disposal considerations

13.1 Waste treatment methods:
   - Recommendation:
     - Hand over to disposers of hazardous waste.
     - Must be specially treated under adherence to official regulations.
     - Consult state local or national regulations for proper disposal.
   - Uncleaned packagings:
     - Recommendation: Disposal must be made according to official regulations.

SECTION 14: Transport information

14.1 UN Number:
   - ADR, ADN, IMDG, IATA: Not applicable
14.2 UN proper shipping name:
   - ADR, ADN, IMDG, IATA: Not applicable
14.3 Transport hazard class(es):
   - ADR, ADN, IMDG, IATA: Not applicable
14.4 Special precautions for user:
   - Not applicable
14.5 Environmental hazards:
   - Not applicable
14.6 Special precautions for user:
   - Not applicable
14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:
   - UN "Model Regulation": -

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:
   - Australian Inventory of Chemical Substances: Substance is listed.
   - Standard for the Uniform Scheduling of Drugs and Poisons: Substance is not listed.
   - National regulations:
     - Employment restrictions concerning young persons must be observed.
     - For use only by technically qualified individuals.
   - Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.
### Other regulations, limitations and prohibitive regulations

<table>
<thead>
<tr>
<th>Regulation</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELINCS (European List of Notified Chemical Substances)</td>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006</td>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.</td>
<td>Substance is not listed.</td>
</tr>
<tr>
<td>Annex XIV of the REACH Regulations (requiring Authorisation for use)</td>
<td>Substance is not listed.</td>
</tr>
</tbody>
</table>

### 15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

### SECTION 16: Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing SDS:** Global Marketing Department

**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)
- 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
- vPvB: very Persistent and very Bioaccumulative
- ACGIH: American Conference of Governmental Industrial Hygienists (USA)
- OSHA: Occupational Safety and Health Administration (USA)
- NTP: National Toxicology Program (USA)
- IARC: International Agency for Research on Cancer
- EPA: Environmental Protection Agency (USA)