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

1.1 Product identifier:

Trade name Catechol

Stock number: A10164
CAS Number: 120-80-9
EC number: 204-427-5
Index number: 604-016-00-4

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

Acute Tox. 4 H302 Harmful if swallowed.
Acute Tox. 4 H312 Harmful in contact with skin.
Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2 H319 Causes serious eye irritation.

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
H302 Harmful if swallowed.
H312 Harmful in contact with skin.
H315 Causes skin irritation.
H319 Causes serious eye irritation.

Precautionary statements
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.
P362 Take off contaminated clothing.
P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor/.../if you feel unwell.
P312 Call a POISON CENTER/doctor/.../if you feel unwell.
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: 120-80-9 1,2-Dihydroxybenzene
Identification number(s): EC number: 204-427-5
Index number: 604-016-00-4

SECTION 4: First aid measures

4.1 Description of first aid measures

4.1.1 After inhalation

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

4.1.2 After skin contact

Immediately wash with water and soap and rinse thoroughly.
Seek immediate medical advice.

4.1.3 After eye contact

Rinse opened eye for several minutes under running water. Then consult doctor.

4.1.4 After swallowing

Seek medical treatment.

4.2 Most important symptoms and effects, both acute and delayed

No further relevant information available.

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:

(Contd. on page 2)
Trade name **Catechol**

Carbon monoxide and carbon dioxide

5.3 Advice for firefighters

**Protective equipment:**
Wear self-contained breathing apparatus.
Wear full protective suit.

**SECTION 6: Accidental release measures**

6.1 Personal precautions, protective equipment and emergency procedures

Wear protective equipment. 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: Dispose of contaminated material as waste according to section 13.

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/exhaustion at the workplace.
Prevent formation of dust.

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.
Store in the dark.
Store away from oxidising agents.

Further information about storage conditions:
Store under dry inert gas.
This product is air sensitive.
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.
Protect from the effects of light.

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

**SECTION 8: Exposure controls/personal protection**

Additional information about design of technical systems:
Properly 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:

<table>
<thead>
<tr>
<th>Component</th>
<th>Long-term value</th>
</tr>
</thead>
<tbody>
<tr>
<td>120-80-9 1,2-Dihydroxybenzene (100.0%)</td>
<td>23 mg/m³, 5 ppm</td>
</tr>
</tbody>
</table>

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.
Instantly remove any soiled and impregnated garments.
Wash hands during breaks and at the end of the work.
Avoid contact with the eyes and skin.
Maintain an ergonomically appropriate working environment.

Breathing equipment: Use breathing protection with high concentrations.

Recommended filter device for short term use:
Use a respirator with type P100 (USA) or P3 (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards.

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 Nitrile rubber, NBR

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:

<table>
<thead>
<tr>
<th>Form</th>
<th>Powder or flakes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>White to brown</td>
</tr>
<tr>
<td>Smell</td>
<td>Aromatic</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>Not determined</td>
</tr>
</tbody>
</table>

pH-value: Not applicable.

<table>
<thead>
<tr>
<th>Change in condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting point/Melting range:</td>
</tr>
<tr>
<td>Boiling point/Boiling range:</td>
</tr>
<tr>
<td>Sublimation temperature / start:</td>
</tr>
</tbody>
</table>

Flash point: 127 °C

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: 1.9 Vol %
Upper: Not determined

Steam pressure at 20 °C: 0.2 hPa

Density at 20 °C: 1.37 g/cm³
Relative density: Not determined.
Vapour density: Not applicable.
Evaporation rate: Not applicable.

Solubility in / Miscibility with
Water at 20 °C: 451 g/l

Partition coefficient (n-octanol/water): Not determined.

Density at 20 °C: Not determined.
Vapour density: Not applicable.
Evaporation rate: Not applicable.

SECTION 10: Stability and reactivity

10.1 Reactivity
No information known.

10.2 Chemical stability
Stable under recommended storage conditions.

Thermal decomposition / conditions to be avoided:
No decomposition if used and stored according to specifications.

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
Light

10.6 Hazardous decomposition products:
Carbon monoxide and carbon dioxide

SECTION 11: Toxicological information

11.1 Information on toxicological effects
Acute toxicity:
Harmful if swallowed.
Danger by skin resorption.
The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.

LD/LC₅₀ values that are relevant for classification:

<table>
<thead>
<tr>
<th>Route</th>
<th>LD₅₀</th>
<th>LC₅₀</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>260 mg/kg (rat)</td>
<td>800 mg/kg (rabbit)</td>
</tr>
</tbody>
</table>

Skin irritation or corrosion: Causes skin irritation.
Eye irritation or corrosion: Causes serious eye irritation.
Sensitization: No sensitizing effect known.

Germ cell mutagenicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for this substance.

Carcinogenicity: IARC Group 2B: Possibly carcinogenic to humans: limited evidence in humans in the absence of sufficient evidence in experimental animals.
ACGIH Group A3: Animal carcinogen: Agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) not considered relevant to worker exposure. Available epidemiologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence suggests that the agent is not likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for this substance.

Reproductive toxicity:
The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive data for this substance.

Specific target organ system toxicity - repeated exposure: No effects known.
Specific target organ system toxicity - single exposure: No effects known.

Subacute to chronic toxicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.

Additiona 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.

Additional ecological information:

General notes:
Do not allow product to reach ground water, water bodies or sewage system.
Water hazard class 2 (Assessment by list): hazardous for water.
Danger to drinking water if even small quantities leak into soil.

Aspiration hazard: No effects known.

Subacute to chronic toxicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.

Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

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

UN-Number
ADR, IMDG, IATA: UN2811

14.2 UN proper shipping name
ADR: 2811 TOXIC SOLID, ORGANIC, N.O.S. (Catechol)
IMDG, IATA: TOXIC SOLID, ORGANIC, N.O.S. (Catechol)
14.3 Transport hazard class(es)

ADR

Class Label
IMDG, IATA 6.1 (T2) Toxic substances.

Class Label
6.1 Toxic substances.

Packing group
ADR, IMDG, IATA III

14.5 Environmental hazards:
Not applicable.

14.6 Special precautions for user
Warning: Toxic substances.

Kemler Number:
60

EMS Number:
F-A,S-A

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
Not applicable.

Transport/Additional information:
ADR
Excepted quantities (EQ): E1
Limited quantities (LQ): LQ9
Transport category: 2
Tunnel restriction code: E

UN "Model Regulation": UN2811, TOXIC SOLID, ORGANIC, N.O.S. (Catechol), 6.1, III

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

Information about limitation of use:
For use only by technically qualified individuals.

Classification according to VbF: Not applicable

Water hazard class: Water hazard class 2 (Assessment by list): hazardous for water.

ELINCS (European List of Notified Chemical Substances) Substance is not listed.
Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed.

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.

Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not listed.

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)
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)
VbF: Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)
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)
ARC: International Agency for Research on Cancer
EPA: Environmental Protection Agency (USA)