1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Chemical product name : p-Aminobenzoic acid
Common chemical name : 4-Aminobenzoic acid
Synonyms : PABA, Vitamin H'
Chemical formula : C₇H₇NO₂ = 137.1
CAS no. : 150-13-0
EINECS no. : 205-753-0
Supplier’s name : Duchefa Biochemie B.V.
Supplier’s address : A. Hofmanweg 71
2031 BH Haarlem
The Netherlands
Emergency telephone : (+31) - (0)23 - 5319093

2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substance/preparation:</th>
<th>Chemical name</th>
<th>CAS no.</th>
<th>% (w/w)</th>
<th>Symbol</th>
<th>R phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>p-Aminobenzoic acid</td>
<td>150-13-0</td>
<td>&gt; 99</td>
<td>Xn</td>
<td>R: 22-36/37/38-43</td>
<td></td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

Physical/chemical hazards : Void
Environmental hazards : None
Effect(s) of (over) exposure : --
Symptom(s) of (over) exposure : 
Inhalation : Harmful if swallowed.
Ingestion : Irritating to respiratory system
Skin contact : Irritating to skin. May cause sensitization by skin contact.
Eye contact : Irritating to eyes
Aggravating conditions : --
4. FIRST AID MEASURES

Fresh air. If you feel unwell seek medical advice and show the MSDS if possible

SKIN CONTACT : Take off contaminated clothes. Wash skin with soap and copious amounts of water.

EYE CONTACT : Rinse eyes with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

INGESTION, INHALATION : If swallowed, Rinse out mouth and then drink plenty of water. Induce vomiting and call for medical help. If inhaled, remove from exposure to fresh air. Consult a doctor in case of symptoms

5. FIRE FIGHTING MEASURES

Suitable extinguishing media : Fight fire with foam, fire extinguishing powder.

Hazardous thermal decomposition and combustion products : Combustible. In case of open fire, dangerous gases and steams could be possible.

Special fire fighting procedures : None

Protection of fire-fighters : Fire-fighters must wear self contained breathing equipment and protective clothing.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions : Avoid contact with skin and eyes. Do not swallow. Do not breathe dust. Wear suitable protective clothing. Use rubber gloves and eye/face protection and use respirator.

Environmental precautions : Avoid contact with environment. do not allow to enter drainage system, surface or ground water. Keep dirty washing water for appropriate disposal.

Methods for cleaning up : Sweep up spilled substance dry, avoid dust. Ventilate and wash spill area with water.
MATERIAL SAFETY DATA SHEET

p-AMINOBENZOIC ACID

7. HANDLING AND STORAGE

Handling : Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Keep containers closed and moisture free.

Storage : Store dry, keep containers tightly closed, protect from the effects of direct sunlight

Packaging materials : Glass or plastic containers

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering measures : Safety shower and eye bath. Mechanical exhaust required.

Hygienic measures : Do not eat, drink and/or smoke during work. Wash after handling

Personal protection
Respiratory system : Do not inhale powder use respirator

Skin and body : Use protective clothing

Hands : Use rubber gloves

Eyes : Use eye/face protection

Occupational exposure limits
TLV (USA) : --
"MAK" (Germany) : --
MAC (Netherlands) : --

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : crystalline
Colour : white to faintly beige
Odour : recognizable
Melting point : 188 – 189°C
Boiling point : --
Density : 1.374 g/cm³
Solubility : 4.7 g/l water
Flash point : --
Lower explosion limit : --
Upper explosion limit : --
pH-value (5 g/l, 20 °C) : 3.5
10. STABILITY AND REACTIVITY

Stability : Stable at room temperature.
Conditions to avoid : Moisture
Materials to avoid : --
Hazardous decomposition products : None known
Hazardous polymerization : None

11. TOXICOLOGICAL INFORMATION

Acute toxicity
Oral : LD$_{50}$ (rat): > 6000 mg/kg, LD$_{50}$ (mouse): 2850 mg/kg
       LD$_{50}$ (rabbit): 1830 mg/kg, LD$_{50}$ (dog): 1000 mg/kg
Intravenous : LD$_{50}$ (rabbit): 2000 mg/kg
Subcutaneous : --
Ingestion : Harmful if swallowed
Inhalation : Irritating to respiratory system
Eye irritation : Irritating to eyes
Skin irritation : Irritating to skin. May cause sensitisation by skin contact.
Sensitization : May cause allergic skin reaction.
Chronic toxicity : --
Carcinogenicity : --
Mutagenicity : Mouse (intraperitoneal, 1 g/kg): DNA damage
Reproductive hazard : Rat (oral, 2500 mg/kg, exposure time 1 – 22 days pregnancy):
       Results: Effects on fertility: post implantation mortality
12. ECOLOGICAL INFORMATION

Mobility : Not known
Persistence and degradability : Not known
Bioaccumulative potential : Not known
Ecotoxicity : Not known

13. DISPOSAL CONSIDERATIONS

Product:
There are no uniform EC Regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding laws and regulations. We recommend that you contact either the authorities in charge of approved waste disposal companies which will advise you on how to dispose of special waste.

Packaging:
Disposal in compliance with official regulations. Handle contaminated packaging in the same way as the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

14. TRANSPORT INFORMATION

UN Number : --
Maximum filing grade tank : --
Proper shipping name : --
Road/Railway/Inland waterways
ADR/RID/ADNR Class : Non-hazardous for road transport
Packaging group : --
Sea
IMDG Class : Non-hazardous for sea transport
Packaging group : --
Air
IATA Class : Non-hazardous for air transport
Packaging group : --
Packing instructions (PA) : --
Packing instructions (CAO) : --
15. REGULATORY INFORMATION

Responsibility of the receiver to have knowledge of national and local regulations.

EC Classification

Label name : HARMFUL

Hazard symbol : Xn

Risk phrases : 22: Harmful if swallowed
36/37/38: Irritating to eyes, respiratory system and skin
43: May cause sensitisation by skin contact

Safety phrases : 26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
36: Wear suitable protective clothing

National regulations

WGK (Germany) : 1
Listed on TSCA-inventory : --
Listed on DSL-inventory : --
Listed on AICS-inventory : --
Listed on MITI-inventory : --

16. OTHER INFORMATION

All information given by or on behalf of Duchefa as to properties, specifications, use, etc. of the products is based on research, including literature and is believed reliable.

Duchefa is not liable for any damage a Customer might suffer as a result of the fact that the products the Customer bought from Duchefa prove not to be suitable for the use to which the Customer wishes to apply the products, unless the Customer has been expressly advised by Duchefa in writing in this regard.

Duchefa is not liable for damage caused by the actions or omissions of Customers themselves or by persons appointed by Customers or for whom Customers are otherwise responsible.

In this respect the buyer is obliged to check the quality and all other properties of the products. The buyer assumes all responsibilities connected with the use of the products and information.

Duchefa does not guarantee the manner of packaging, and/or the quality and/or the properties of the packaging of the goods unless Duchefa itself applied the packaging and/or had it applied and/or packed the goods itself and/or had them packed.
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Communications by or on behalf of Duchefa on the quality, the composition, the handling (in the broadest sense of the word), application possibilities, properties and the like of the products supplied by Duchefa do not bind Duchefa unless these communications are made expressly, in the form of a written guarantee.

Furthermore the general terms and conditions of sale are applicable and upon request we will send the complete general terms and conditions of sale.

HISTORY

<table>
<thead>
<tr>
<th>Printing date</th>
<th>Date previous MSDS</th>
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<tbody>
<tr>
<td>:</td>
<td>:</td>
</tr>
<tr>
<td>February 7, 2005</td>
<td>May 17, 2002</td>
</tr>
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