SAFETY DATA SHEET
N-PHENYLICYCLOHEXYLAMINE

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

1.1 Product identifier
Chemical name: N-Cyclohexylaniline
Registration no.: -
Index number: -
ES (EINECS) number: 217-344-4
CAS number: 1821-36-9
Other names of the substance: N-phenylcyclohexylamine

1.2 Relevant identified uses of the substance or mixture and uses advised against
Uses of the substance: N-phenylcyclohexylamine is used as chemical intermediate.
Uses advised against: Not specified.

1.3 Details of the supplier of the safety data sheet
Name: BorsodChem MCHZ, s.r.o.
Name or business name: BorsodChem MCHZ, s.r.o.
Place of business or headquarters: Chemická 2039/1, 709 00 Ostrava – Mariánské Hory, Czech Republic
Identification number: 26019388
Telephone: +420 596 641 111
Fax: +420 596 642 040
E-mail of the technically competent person responsible for the safety data sheet: zsvobodova@bc-mchz.cz

1.4 Emergency telephone number
Company telephone number: +420 596 643 221 or 596 620 794 non-stop
24-hours emergency contact CHEMTREC: 001-703-527-3887, company code CCN 206 072
The National Poisons Information Service (NPIS), City Hospital, Birmingham, B18 7QH, UK
Tel: +44 121 507 4123, fax: +44 121 507 5580, e-mail: allistervale@npis.org, www.npis.org
National Capital Poison Center, 3201 New Mexico Ave, Suite 310 Washington, DC 20016
Emergency Line: 1-800-222-1222, fax: 202-362-6377, e-mail: pc@poison.org, www.poison.org

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
According to Regulation (EC) no. 1272/2008:
Acute Tox. 4; H302 Harmful if swallowed.
Acute Tox. 4; H312 Harmful in contact with skin.
Acute Tox. 4; H332 Harmful if inhaled.
Skin Irrit. 2; H315 Causes skin irritation.
Eye Irrit. 2; H319 Causes serious eye irritation.
STOT SE 3; H335 May cause respiratory irritation.

The most important human health adverse effects during use of the substance or preparation:
Harmful if swallowed, in contact with skin or if inhaled. Irritating to eyes, respiratory system and skin.
2.2 Label elements

According to Regulation (EC) no. 1272/2008:

Symbol:

Signal word: WARNING

H phrases:
H302+H312+H332 Harmful if swallowed, in contact with skin or if inhaled.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

P phrases:
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
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

The substance is not identified as persistent, bioaccumulative and toxic (PBT) or very persistent, very bioaccumulative (vPvB) under Annex XIII of Regulation 1907/2006/ES.

SECTION 3: Composition/information on ingredients

3.1 Substances

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>N-Cyclohexylaniline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index number</td>
<td>217-344-4</td>
</tr>
<tr>
<td>EC No.</td>
<td>217-344-4</td>
</tr>
<tr>
<td>CAS No.</td>
<td>1821-36-9</td>
</tr>
<tr>
<td>Substance content (% w.)</td>
<td>min. 98.00</td>
</tr>
<tr>
<td>Synonyms</td>
<td>N-phenylcyclohexylamine</td>
</tr>
</tbody>
</table>

Impurities: < 1 % w., CMR impurities < 0,1 % w.

3.2 Mixtures

This is a chemical substance.
SECTION 4: First aid measures

4.1 Description of first aid measures

Inhalation: Remove the victim quickly and considering own safety to fresh air, do not let the victim walk! Depending on situation, rinsing of oral cavity and nose, if necessary, with water is recommended. If the victim’s clothing is contaminated, change the victim and protect him against cold. Ensure breathing. Call a physician!

Skin: Remove contaminated clothing immediately; before washing or during washing, remove any rings, watches, bracelet that are in places of contact of the substance with skin. Rinse affected areas with stream of lukewarm water, if possible, for 10 to 30 minutes; do not use a brush, soap or neutralising agents! Cover burned areas of skin with a sterile dressing, do not use any ointments or other medical and pharmaceutical products. Cover the victim to protect him against cold. Depending on situation, call the rescue service or ensure medical attention.

Eyes: Rinse eyes immediately under running water, open eyelids (even by force); if the victim wears contact lenses, remove them immediately. Do never neutralise! Rinse for 10 to 30 minutes from the inner to the outer ocular angle to prevent running of water in the other eye. Ensure as soon as possible medical treatment by an expert, if possible; the victim must get medical attention even in case of small injury.

Ingestion: DO NOT INDUCE VOMITING – higher risk of harm to digestive tract!!! Risk of perforation of oesophagus and stomach! Rinse mouth immediately with water and give to drink 2-5 dl of cold water to attenuate thermal effect of the caustic (due to almost immediate effect to mucous membranes, it is suitable to offer immediately tap water than loose time by looking for chilled liquid – each minute of delay causes irreversible harm to mucous membranes! Soda water or mineral waters are not recommended, as they may release gaseous carbon dioxide. It is not recommended to consume a lot of liquid, as it could induce vomiting and possible aspiration of the caustic in lungs). Do not force the victim to drink, especially if he/she feels pain in mouth or throat. In this case, make the victim rinse his/her mouth. DO NOT ADMINISTER ACTIVATED CARBON! (blackening will make examination of the mucous membranes more difficult and activated charcoal has not positive effect in case of acids and lyes). Do not give to eat. Do not administer anything by mouth if the victim is unconscious or has convulsions. Get immediate medical attention!

4.2 Most important symptoms and effects, both acute and delayed

Vapours severely irritate eyes, airways and skin and cause burning. Contact with the liquid causes severe burns to eyes and skin. The liquid is absorbed by skin.

4.3 Indication of any immediate medical attention and special treatment needed

Symptomatic treatment. In case of contact with eyes, immediately rinse carefully with water.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: big fire – foam for polar liquids, water mist or water spray
small fire – water mist or water spray, dry powder, CO₂

Unsuitable extinguishing media: not specified

5.2 Special hazards arising from the substance or mixture: Flammable liquid. Possibility of release of carbon monoxide and nitrogen oxides.

5.3 Advice for firefighters: Self-contained breathing apparatus, special protective clothing!
SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures: Protection of air ways, protection of non-protected body parts, protection of eyes. Measure concentration of phenylcyclohexanamine (hereinafter only PCHA) in the environment, provide sufficient ventilation.

6.2 Environmental precautions: Prevent contamination of soil and water, check concentration of PCHA in the environment in the vicinity of accident.

6.3 Methods and material for containment and cleaning up: Cover with an absorbent material and sweep up into a waste container. For methods of disposal see Section 13.

6.4 Reference to other sections: Refer to section 10 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling: Delivered in or truck tanks or in steel barrels or in IBC containers. Ventilation provided during emptying.

7.2 Conditions for safe storage, including any incompatibilities: Store in easily ventilated rooms in original packages or in steel tanks. The highest allowable storing temperature is 100 °C. Do not store together with foodstuffs, strong oxidising agents and concentrated strong acids.

7.3 Specific end use(s): Not specified.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
Czech republic: Not established.

8.1.1 DNEL (Derived No Effect Level) for exposure of workers: not established

8.2 Exposure controls
When used in a closed circuit or with sufficient vapour exhaust, it is necessary to use standard personal protective equipment. When used in an open facility and insufficient vapour exhaust, it is necessary to use respiratory protection.

Engineering controls: Ensure ventilation. Check measurement of PCHA concentration in the working environment.

Respiratory protection: protective mask or half mask with filter (EN 149) against organic vapours - type A/P2
Hand protection: protective gloves (e.g. EN 374)
Eye protection: protective goggles or face shield (e.g. EN 166)
Skin protection: protective clothing

Other data: Do not eat, drink and smoke during work. Wash your hands with hot water and soap after work, apply suitable reparative preparations.

Environmental exposure controls: Use in a closed circuit, waste gases burnt in a fire crack or cleaned by adsorption (activated carbon), wastewater treated biologically.
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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>yellowish to brown liquid</td>
</tr>
<tr>
<td>Odour</td>
<td>fishy</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>not established</td>
</tr>
<tr>
<td>pH</td>
<td>not established</td>
</tr>
<tr>
<td>Melting point/freezing point (°C)</td>
<td>14 -15</td>
</tr>
<tr>
<td>Initial boiling point (at 1013 hPa)</td>
<td>279</td>
</tr>
<tr>
<td>Flash point (at 1013 hPa in °C)</td>
<td>136</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>not established</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>the product is liquid</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits (% vol.)</td>
<td>not established</td>
</tr>
<tr>
<td>Vapour pressure (kPa at 20 °C)</td>
<td>not established</td>
</tr>
<tr>
<td>Vapour density</td>
<td>not established</td>
</tr>
<tr>
<td>Relative density (at 20 °C)</td>
<td>0.996</td>
</tr>
<tr>
<td>Solubility (in g/l at 20 °C) in water</td>
<td>not soluble</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water (log $P_{ow}$ at 25 °C and pH 6.8)</td>
<td>not established</td>
</tr>
<tr>
<td>Auto-ignition temperature (at 1013 hPa in °C)</td>
<td>not established</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>not established</td>
</tr>
<tr>
<td>Viscosity (mPa.s at 20 °C)</td>
<td>not established</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>no explosive properties</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>no oxidising properties</td>
</tr>
</tbody>
</table>

9.2 Other information: -

SECTION 10: Stability and reactivity

10.1 Reactivity: None known, based on information available

10.2 Chemical stability: Stable under normal conditions.

10.3 Possibility of hazardous reactions: None known, based on information available

10.4 Conditions to avoid: Incompatible products.

10.5 Incompatible materials: Acids, Strong oxidizing agents, Acid chlorides.

10.6 Hazardous decomposition products: Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO2).
SECTION 11: Toxicological information

Information on toxicological effects:
CLP evaluation:

11.1 Acute toxicity: category 4
   • Based on test data

11.2 Irritation
   Dermal irritation: category 2
   Eye irritation: category 2

11.3 Sensitisation
   Skin sensitisation: was not tested

11.4 Mutagenicity: not available

11.5 Carcinogenicity: not available

11.6 Reproductive toxicity: not available

11.7 STOT – single exposure: Respiratory system

11.8 Specific target organs toxicity – repeated exposure: not available

11.9 Aspiration hazard: not available

SECTION 12: Ecological information

12.1 Toxicity

12.1.1 Aquatic toxicity: not available

12.1.2 Sediment toxicity: not available

12.1.3 PNEC (Predicated No Effect Concentration) – not determined

12.2 Persistence and degradability: not available

12.3 Bio-accumulative potential: not available

12.4 Mobility in soil: May enter the environment from waste water.
   Stability: not available
   Adsorption: not available

12.5 Results of PBT and vPvB assessment: not included

12.6 Other adverse effects: not specified

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods: Incineration in a hazardous waste incineration plant in accordance with Act on Wastes under the catalogue numbers 16 0305 or 16 0508.
Disposal of contaminated packaging: Rinse with water, dispose the caught water and packaging in accordance with valid regulations.

SECTION 14: Transport information

Land transport (ADR/RID)
Marine transport (IMPG)
Air transport (ICAO/IA TA)

14.1 UN number: 2810
14.2 UN proper shipping name: TOXIC LIQUID, ORGANIC, N.O.S. (N-CYCLOHEXYLANILINE)
14.3 Transport hazard class(es): 6.1, T1
Hazard identification number (Kemler code): 60
14.4 Packing group: III
14.5 Environmental hazards: No
Marine pollutant: No
14.6 Special precautions for user: not included in „Segregation Groups“
EMS: F-A, S-A
14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code: Irrelevant

SECTION 15: Regulatory information

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

15.1.1 EU regulations concerning safety, health and environment/specific legislation concerning substances or mixtures, as amended:


15.1.2 Regulations valid in CR and concerning safety, health and environment/specific legislation concerning substances or mixtures, as amended:

- Act 350/2011 Coll., on chemical substances and chemical mixtures and on amendments to some acts;
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- Decree of Ministry of Environment no. 93/2016 Coll. laying down Waste Catalogue, List of Dangerous Waste and lists of wastes and states for the purpose of export, import and transit of wastes and procedure of granting approval for export, import and transit of wastes (Waste Catalogue);

15.2 Chemical safety assessment
Chemical safety assessment will be provided.

SECTION 16: Other information

16.1 This safety data sheet supersedes all previous versions.

16.2 List of abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carc.</td>
<td>Carcinogenicity</td>
</tr>
<tr>
<td>CAS</td>
<td>Chemical Abstracts Service</td>
</tr>
<tr>
<td>CLP</td>
<td>Classification, labelling, packaging regulation</td>
</tr>
<tr>
<td>CSR</td>
<td>Chemical safety report</td>
</tr>
<tr>
<td>DNEL</td>
<td>Derived no-effect level</td>
</tr>
<tr>
<td>ES</td>
<td>Exposure scenario</td>
</tr>
<tr>
<td>EC</td>
<td>European Commission</td>
</tr>
<tr>
<td>EC₅₀</td>
<td>Median effective concentration EC₅₀ – used in toxicity tests. Median effective concentration EC₅₀ is the concentration of substance that causes 50 % mortality or 50 % decrease of growth or growth rate with reference to the control sample.</td>
</tr>
<tr>
<td>EINECS</td>
<td>European Inventory of Existing Commercial Chemical Substances</td>
</tr>
<tr>
<td>ELINCS</td>
<td>European List of Notified Chemical Substances</td>
</tr>
<tr>
<td>Irrit.</td>
<td>Irritant</td>
</tr>
<tr>
<td>LC₅₀</td>
<td>Lethal concentration, 50 % (lethal concentration) is used for toxicity tests</td>
</tr>
<tr>
<td>LD₅₀</td>
<td>Absolute lethal dose that kills 50 % of members of population</td>
</tr>
<tr>
<td>LOAEC</td>
<td>Lowest observed adverse effect concentration</td>
</tr>
<tr>
<td>NOAEC</td>
<td>No observed adverse effect concentration</td>
</tr>
<tr>
<td>NOEC</td>
<td>No observed effect concentration</td>
</tr>
<tr>
<td>OECD</td>
<td>Organisation for Economic Cooperation and Development</td>
</tr>
<tr>
<td>PBT</td>
<td>Persistent, bioaccumulative and toxic</td>
</tr>
<tr>
<td>PNEC</td>
<td>Predicted no-effect concentration</td>
</tr>
<tr>
<td>REACH</td>
<td>Registration, Evaluation, Authorisation and Restriction of Chemicals</td>
</tr>
<tr>
<td>Sens.</td>
<td>Sensitivity</td>
</tr>
<tr>
<td>STOT</td>
<td>Specific target organs toxicity</td>
</tr>
<tr>
<td>STOT SE</td>
<td>Specific target organs toxicity - single exposure</td>
</tr>
<tr>
<td>STOT RE</td>
<td>Specific target organs toxicity - repeated exposure</td>
</tr>
<tr>
<td>STP</td>
<td>Sewage treatment plant</td>
</tr>
<tr>
<td>SU</td>
<td>Sector of use</td>
</tr>
<tr>
<td>Tox.</td>
<td>Toxicity</td>
</tr>
<tr>
<td>vPvB</td>
<td>Very persistent and very bioaccumulative</td>
</tr>
</tbody>
</table>

16.3 A list of mentioned phrases:

H phrases:
H302+H312+H332 Harmful if swallowed, in contact with skin or if inhaled.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

P phrases:
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

16.4 Sources used
Information from literature

16.5 History of revisions

<table>
<thead>
<tr>
<th>Issue</th>
<th>Date</th>
<th>Change</th>
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<tbody>
<tr>
<td>2.0</td>
<td>01 June 2016</td>
<td>Preparation of the safety data sheet according to Regulation (EC) No 1907/2006 of the European Parliament and of the Council</td>
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</table>

Prepared by: IT&Quality, ecology and safety department – Ing. Zuzana Svobodová
Approved by: Head of IT&Quality, ecology and safety department – Ing. Stanislav Pekara, MBA

www.borsodchem-cz.com

The mentioned data reflect the present state of knowledge and experience and they are in compliance with valid legislation of the Czech Republic. The client is responsible for observing valid national legislation in the place of use.

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