1. Identification

Product identifier used on the label

PENDULUM AQUACAP HERBICIDE

Recommended use of the chemical and restriction on use
Recommended use*: herbicide

* The “Recommended use” identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:
BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

Emergency telephone number

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

Other means of identification

Substance number: 171005
EPA Registration number: 241-416
Molecular formula: C13 H19 N3 O4
Chemical family: aniline derivative
Synonyms: pendimethalin

2. Hazards Identification


Classification of the product

<table>
<thead>
<tr>
<th>Skin Sens.</th>
<th>Aquatic Chronic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1B</td>
<td>1</td>
</tr>
</tbody>
</table>

Skin sensitization
Hazardous to the aquatic environment - chronic

Label elements
Pictogram:

Signal Word:
Warning

Hazard Statement:
H317 May cause an allergic skin reaction.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements (Prevention):
P280 Wear protective gloves.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P260 Do not breathe mist or vapour.
P264 Wash with plenty of water and soap thoroughly after handling.

Precautionary Statements (Response):
P312 Call a POISON CENTER or doctor/physician 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.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303 + P352 IF ON SKIN (or hair): Wash with plenty of soap and water.
P333 + P311 If skin irritation or rash occurs: Call a POISON CENTER or doctor/physician.
P391 Collect spillage.
P332 + P313 If skin irritation occurs: Get medical advice/attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P337 + P311 If eye irritation persists: Call a POISON CENTER or doctor/physician.

Precautionary Statements (Storage):
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.

Precautionary Statements (Disposal):
P501 Dispose of contents/container to hazardous or special waste collection point.

Hazards not otherwise classified

Labeling of special preparations (GHS):
CONTAINS ISOCYANATES. INHALATION OF ISOCYANATE MISTS OR VAPORS MAY CAUSE RESPIRATORY IRRITATION, BREATHLESSNESS, CHEST DISCOMFORT AND REDUCED PULMONARY FUNCTION. OVEREXPOSURE WELL ABOVE THE PEL MAY RESULT IN BRONCHITIS, BRONCHIAL SPASMS AND PULMONARY EDEMA. LONG-TERM EXPOSURE TO ISOCYANATES HAS BEEN REPORTED TO CAUSE LUNG DAMAGE, INCLUDING REDUCED LUNG FUNCTION WHICH MAY BE PERMANENT. ACUTE OR CHRONIC OVEREXPOSURE TO ISOCYANATES MAY CAUSE SENSITIZATION IN SOME INDIVIDUALS, RESULTING IN ALLERGIC RESPIRATORY REACTIONS INCLUDING WHEEZING, SHORTNESS OF BREATH AND DIFFICULTY BREATHING. ANIMAL TESTS INDICATE THAT SKIN CONTACT MAY PLAY A ROLE IN CAUSING RESPIRATORY SENSITIZATION.
3. Composition / Information on Ingredients


<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Weight %</th>
<th>Chemical name</th>
</tr>
</thead>
<tbody>
<tr>
<td>40487-42-1</td>
<td>38.7 %</td>
<td>pendimethalin</td>
</tr>
<tr>
<td>77348-43-7</td>
<td>1.0 - 3.0%</td>
<td>Isocyanic acid, polymethylenepolyphenylene ester, polymer with 1,6-hexanediamine</td>
</tr>
<tr>
<td>107-06-2</td>
<td>40.76 PPM</td>
<td>1,2-dichloroethane</td>
</tr>
</tbody>
</table>

4. First-Aid Measures

**Description of first aid measures**

**General advice:**
First aid personnel should pay attention to their own safety. If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position). Immediately remove contaminated clothing.

**If inhaled:**
Keep patient calm, remove to fresh air, seek medical attention.

**If on skin:**
Immediately wash thoroughly with soap and water, seek medical attention.

**If in eyes:**
Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

**If swallowed:**
Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

**Most important symptoms and effects, both acute and delayed**

Symptoms: orange-red coloured urine caused by dye (not associated with methemoglobinemia)
The most important known symptoms and effects are described in the labelling (see section 2)
and/or in section 11., Further important symptoms and effects are so far not known.

**Indication of any immediate medical attention and special treatment needed**

**Note to physician**
Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

**Extinguishing media**

Suitable extinguishing media:
foam, dry powder, carbon dioxide, water spray
Special hazards arising from the substance or mixture
Hazards during fire-fighting:
carbon monoxide, carbon dioxide, nitrogen dioxide, nitrogen oxide, Hydrocarbons,
If product is heated above decomposition temperature, toxic vapours will be released. The substances/groups of substances mentioned can be released in case of fire.

Advice for fire-fighters
Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:
Evacuate area of all unnecessary personnel. Contain contaminated water/firefighting water. Do not allow to enter drains or waterways.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Take appropriate protective measures. Clear area. Shut off source of leak only under safe conditions. Extinguish sources of ignition nearby and downwind. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment.

Environmental precautions
Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater. Contain contaminated water/firefighting water.

Methods and material for containment and cleaning up
Dike spillage. Pick up with suitable absorbent material. Place into suitable containers for reuse or disposal in a licensed facility. Spilled substance/product should be recovered and applied according to label rates whenever possible. If application of spilled substance/product is not possible, then spills should be contained, solidified, and placed in suitable containers for disposal. After decontamination, spill area can be washed with water. Collect wash water for approved disposal.

7. Handling and Storage

Precautions for safe handling
RECOMMENDATIONS ARE FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS. PESTICIDE APPLICATORS & WORKERS must refer to the Product Label and Directions for Use attached to the product for Agricultural Use Requirements in accordance with the EPA Worker Protection Standard 40 CFR part 170. Ensure adequate ventilation. Provide good ventilation of working area (local exhaust ventilation if necessary). Keep away from sources of ignition - No smoking. Keep container tightly sealed. Protect contents from the effects of light. Protect against heat. Protect from air. Handle and open container with care. Do not open until ready to use. Once container is opened, content should be used as soon as possible. Avoid aerosol formation. Avoid dust formation. Provide means for controlling leaks and spills. Do not return residues to the storage containers. Follow label warnings even after container is emptied. The substance/product may be handled only by appropriately trained personnel. Avoid all direct contact with the substance/product. Avoid contact with the skin, eyes and clothing. Avoid inhalation of dusts/mists/vapours. Wear suitable personal protective clothing and equipment.

Protection against fire and explosion:
The relevant fire protection measures should be noted. Fire extinguishers should be kept handy. Avoid all sources of ignition: heat, sparks, open flame. Sources of ignition should be kept well clear. Avoid extreme heat. Keep away from oxidizable substances. Electrical equipment should conform to
Conditions for safe storage, including any incompatibilities
Segregate from incompatible substances. Segregate from foods and animal feeds. Segregate from textiles and similar materials.

Further information on storage conditions: Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Protect containers from physical damage. Protect against contamination. The authority permits and storage regulations must be observed. Protect from temperatures below: -5 °C Changes in the properties of the product may occur if substance/product is stored below indicated temperature for extended periods of time. Protect from temperatures above: 40 °C Changes in the properties of the product may occur if substance/product is stored above indicated temperature for extended periods of time.

8. Exposure Controls/Personal Protection

Users of a pesticidal product should refer to the product label for personal protective equipment requirements.

Components with occupational exposure limits

<table>
<thead>
<tr>
<th>Component</th>
<th>OSHA PEL</th>
<th>CLV ppm</th>
<th>mg/m3</th>
<th>ACGIH TLV TWA ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diphenylmethane-4,4’-diisocyanate (MDI)</td>
<td></td>
<td>0.02</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.02 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.2 mg/m3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.005 ppm</td>
</tr>
</tbody>
</table>

Advice on system design:
Whenever possible, engineering controls should be used to minimize the need for personal protective equipment.

Personal protective equipment

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

Respiratory protection:
Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) TC23C Chemical/Mechanical type filter system to remove a combination of particles, gas and vapours. For situations where the airborne concentrations may exceed the level for which an air purifying respirator is effective, or where the levels are unknown or Immediately Dangerous to Life or Health (IDLH), use NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

Hand protection:
Chemical resistant protective gloves, Protective glove selection must be based on the user’s assessment of the workplace hazards.

Eye protection:
Safety glasses with side-shields. Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Body protection:
Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.
General safety and hygiene measures:
Wear long sleeved work shirt and long work pants in addition to other stated personal protective equipment. Work place should be equipped with a shower and an eye wash. Handle in accordance with good industrial hygiene and safety practice. Personal protective equipment should be decontaminated prior to reuse. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Take off immediately all contaminated clothing. Store work clothing separately. Hands and/or face should be washed before breaks and at the end of the shift. No eating, drinking, smoking or tobacco use at the place of work. Keep away from food, drink and animal feeding stuffs.

9. Physical and Chemical Properties

Form: microencapsulated, suspension
Odour: faint odour, nutty
Odour threshold: Not determined due to potential health hazard by inhalation.
Colour: yellow to brown
pH value: approx. 7 - 9
  (21 °C)
  (measured with the undiluted substance)
Melting point: approx. 0 °C
  Information applies to the solvent.
Flash point: > 230 °F
Flammability: not highly flammable
Lower explosion limit: As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.
Upper explosion limit: As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.
Autoignition: 354 °C (DIN EN 14522)
Density: approx. 9.79 lb/USg
  (68 °F)
Vapour density: not applicable
Partitioning coefficient n-octanol/water (log Pow): not applicable
Thermal decomposition: carbon monoxide, carbon dioxide, nitrogen dioxide, nitrogen oxide, Hydrocarbons
  Stable at ambient temperature. If product is heated above decomposition temperature toxic vapours may be released.
Viscosity, dynamic: 128 mPa.s
  (20 °C)
(OECD 114)
Solubility in water: dispersible
Molar mass: 281.31 g/mol
Evaporation rate: not applicable
Other Information: If necessary, information on other physical and chemical parameters is indicated in this section.
10. Stability and Reactivity

Reactivity
No hazardous reactions if stored and handled as prescribed/indicated.

Oxidizing properties:
not fire-propagating

Chemical stability
The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions
The product is chemically stable. Hazardous polymerization will not occur. No hazardous reactions if stored and handled as prescribed/indicated.

Conditions to avoid

Incompatible materials
strong acids, strong bases, strong oxidizing agents

Hazardous decomposition products

 Decomposition products:
No hazardous decomposition products if stored and handled as prescribed/indicated., Prolonged thermal loading can result in products of degradation being given off.

 Thermal decomposition:
Possible thermal decomposition products:
carbon monoxide, carbon dioxide, nitrogen dioxide, nitrogen oxide, Hydrocarbons
Stable at ambient temperature. If product is heated above decomposition temperature toxic vapours may be released.

11. Toxicological information

Primary routes of exposure
Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity

Oral
Type of value: LD50
Species: rat (male/female)
Value: > 5,000 mg/kg (OECD Guideline 401)

Inhalation
Type of value: LC50  
Species: rat (male/female)  
Value: > 5.23 mg/l (OECD Guideline 403)  
Exposure time: 4 h  
An aerosol was tested.  
No mortality was observed.

Dermal  
Type of value: LD50  
Species: rat (male/female)  
Value: > 5,000 mg/kg (OECD Guideline 402)

Assessment other acute effects  
Assessment of STOT single:  
Based on the available information there is no specific target organ toxicity to be expected after a single exposure.

The product has not been tested. The statement has been derived from the properties of the individual components.

Irritation / corrosion  
Assessment of irritating effects: May cause slight but temporary irritation to the eyes. May cause slight irritation to the skin.

Skin  
Species: rabbit  
Result: Slightly irritating.

Eye  
Species: rabbit  
Result: Slightly irritating.

Sensitization  
Assessment of sensitization: Skin sensitizing effects were not observed in animal studies.

Mouse Local Lymph Node Assay (LLNA)  
Species: guinea pig  
Result: sensitizing  
Method: OECD Guideline 406

Chronic Toxicity/Effects

Repeated dose toxicity  
Assessment of repeated dose toxicity: The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: pendimethalin  
Assessment of repeated dose toxicity: No substance-specific organotoxicity was observed after repeated administration to animals. Adaptive effects were observed after repeated exposure in animal studies.

Genetic toxicity  
Assessment of mutagenicity: The product has not been tested. The statement has been derived from the properties of the individual components. Mutagenicity tests revealed no genotoxic potential.

Carcinogenicity
Assessment of carcinogenicity: The product has not been tested. The statement has been derived from the properties of the individual components.

*Information on: pendimethalin*

Assessment of carcinogenicity: *In long-term studies in rats the substance induced thyroid tumors. The effect is caused by an animal specific mechanism that has no human counterpart. In long-term studies in mice in which the substance was given by feed, a carcinogenic effect was not observed.*

Reproductive toxicity

Assessment of reproduction toxicity: The product has not been tested. The statement has been derived from the properties of the individual components. The results of animal studies gave no indication of a fertility impairing effect.

Teratogenicity

Assessment of teratogenicity: The product has not been tested. The statement has been derived from the properties of the individual components. Animal studies gave no indication of a developmental toxic effect at doses that were not toxic to the parental animals.

Experiences in humans

Pendimethalin is a strongly orange-red compound - virtually an aniline dye. Cases have been described of of orange-yellow colouration of urine following heavy exposure of workers to the dust of pendimethalin. Despite its structure as both a nitro-compound and aromatic amine, exposure to pendimethalin is NOT associated with methemoglobinemia.

Other Information

Misuse can be harmful to health.

**Symptoms of Exposure**

orange-red coloured urine caused by dye (not associated with methemoglobinemia)
The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.. Further important symptoms and effects are so far not known.

Medical conditions aggravated by overexposure

Individuals with pre-existing diseases of the respiratory system, skin or eyes may have increased susceptibility to excessive exposures.

**12. Ecological Information**

Toxicity

Aquatic toxicity

Assessment of aquatic toxicity: Very toxic (acute effect) to aquatic organisms.

Toxicity to fish

LC50 (96 h) 20.36 mg/l, Oncorhynchus mykiss (OECD Guideline 203, static)

Aquatic invertebrates

EC50 (48 h) > 100 mg/l, Daphnia magna (OECD Guideline 202, part 1, static)

Aquatic plants

EC50 (72 h) 1.49 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201)
No observed effect concentration (72 h) 0.035 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201)

EC50 (7 d) 19.25 mg/l (growth rate), Lemna gibba (OECD guideline 221)

No observed effect concentration (7 d) 1.0 mg/l (growth rate), Lemna gibba (OECD guideline 221)

Assessment of terrestrial toxicity
Acute harmful to terrestrial organisms.

Other terrestrial non-mammals

Information on: pendimethalin
LD50 1,421 mg/kg, Anas platyrhynchos
Acute harmful to terrestrial organisms.
LD50 49.8 ug/bee, Apis mellifera
Acute harmful to terrestrial organisms.

Persistence and degradability

Elimination information

Information on: pendimethalin
< 10 % CO2 formation relative to the theoretical value (28 d) (OECD 301B; ISO 9439; 92/69/EEC, C.4-C) Not readily biodegradable (by OECD criteria).

Mobility in soil

Assessment transport between environmental compartments
The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: pendimethalin

The substance will slowly evaporate into the atmosphere from the water surface. Following exposure to soil, adsorption to solid soil particles is probable, therefore contamination of groundwater is not expected.

Additional information

Other ecotoxicological advice:
The ecological data given are those of the active ingredient. Do not release untreated into natural waters.

13. Disposal considerations

Waste disposal of substance:
Pesticide wastes are regulated. Improper disposal of excess pesticide, spray mix or rinsate is a violation of federal law. If pesticide wastes cannot be disposed of according to label instructions, contact the State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.
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PENDULUM AQUACAP HERBICIDE
Revision date : 2017/05/03 Page: 11/13
Version: 9.1 (30255964/SDS_CPA_US/EN)

Container disposal:
Rinse thoroughly at least three times (triple rinse) in accordance with EPA recommendations. Consult state or local disposal authorities for approved alternative procedures such as container recycling. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

RCRA: D028
The waste codes are manufacturer's recommendations based on the designated use of the product. Other use and special waste disposal treatment on customer's location may require different waste-code assignments.

14. Transport Information

Land transport
USDOT
Not classified as a dangerous good under transport regulations

Sea transport
IMDG
Hazard class: 9
Packing group: III
ID number: UN 3082
Hazard label: 9, EHSM
Marine pollutant: YES
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains PENDIMETHALIN)

Air transport
IATA/ICAO
Hazard class: 9
Packing group: III
ID number: UN 3082
Hazard label: 9, EHSM
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains PENDIMETHALIN)

Further information
DOT: This product is regulated if the amount in a single receptacle exceeds the Reportable Quantity (RQ). Please refer to Section 15 of this MSDS for the RQ for this product.

15. Regulatory Information

Federal Regulations

Registration status:
Crop Protection TSCA, US released / exempt
Chemical TSCA, US blocked / not listed

EPCRA 311/312 (Hazard categories): Acute; Chronic
EPCRA 313:
State regulations

State RTK | CAS Number | Chemical name
---------|------------|----------------
NJ      | 40487-42-1 | pendimethalin

CA Prop. 65:
A risk assessment indicates CA Proposition 65 Safe Harbor criteria are not exceeded when the product is used for agricultural or residential purposes.

NFPA Hazard codes:
Health : 1     Fire: 1     Reactivity: 1     Special:

Labeling requirements under FIFRA

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label.

CAUTION:
Causes eye irritation.
HARMFUL IF ABSORBED THROUGH SKIN.
HARMFUL IF SWALLOWED.
KEEP OUT OF REACH OF CHILDREN.
KEEP OUT OF REACH OF DOMESTIC ANIMALS.
Avoid contact with the skin, eyes and clothing.

16. Other Information

SDS Prepared by:
BASF NA Product Regulations
SDS Prepared on: 2017/05/03

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

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