



SAFETY DATA SHEET (SDS)

TITLE:	PENDIMETHALIN 455 g/l CS
--------	---------------------------------

1.0 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY / UNDERTAKING

1.1 Product Identifier

Identification on the label / Trade name : CIBA PENDIMETHALIN 455 CS
Common Name : PENDIMETHALIN 455 g/l CS
Index Number : N/A
REACH registration No. : N/A

1.2 Relevant identified uses of the substance and uses advised against:

Herbicide

1.3 Details of the Manufacturer / Supplier of the safety data sheet:

Supplier CIBA AGRIPHARMA SARL
78 Boulevard Haussmann
75008 Paris , France
Tel Tel: +33 6 51 39 90 00
E-mail administration@ciba- agripharma.com
Webpage www. ciba- agripharma.com

1.4 Emergency Phone Number (24 hours)

+33 6 51 39 90 00

2.0 HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

According to Regulation (EC) No 1272/2008 [CLP]

| Skin Sens. 1B
Aquatic Chronic 1

According to Directive 67/548/EEC or 1999/45/EC



Possible Hazards:

Irritating to skin.

May cause sensitization by skin contact.

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

For the classifications not written out in full in this section the full text can be found in section 16.

2.2. Label elements

Globally Harmonized System, EU (GHS)

Pictogram:



Signal Word:

Warning

Hazard Statement:

H317

May cause an allergic skin reaction.

H410

Very toxic to aquatic life with long lasting effects.

EUH401

To avoid risks to human health and the environment, comply with the instructions for use.

Precautionary Statements (Prevention):

P261

Avoid breathing dust/fume/gas/mist/vapours/spray.

P272

Contaminated work clothing should not be allowed out of the workplace.

P280c

Wear protective gloves.

Precautionary Statements (Response):

P303 + P352

IF ON SKIN (on hair): Wash with plenty of soap and water.

P333 + P311

If skin irritation or rash occurs: Call a POISON CENTER or doctor/physician.

P362

Take off contaminated clothing and wash before reuse.

P391

Collect spillage.

Precautionary Statements (Disposal):

P501

Dispose of contents/container to hazardous or special waste collection point.

According to Regulation (EC) No 1272/2008 [CLP]

| Hazard determining component(s) for labelling: PENDIMETHALIN

According to Directive 67/548/EEC or 1999/45/EC

EEC Directives

Hazard symbol(s)

Xi Irritant.



N Dangerous for the environment.



R-phrases(s)

R38 Irritating to skin.

R43 May cause sensitization by skin contact.

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrases(s)

S2 Keep out of the reach of children.

S13 Keep away from food, drink and animal feeding stuffs.

S20/21 When using do not eat, drink or smoke.

S24 Avoid contact with skin.

S29/35 Do not empty into drains, this material and its container must be disposed of in a safe way.

S37 Wear suitable gloves.

S46 If swallowed, seek medical advice immediately and show this container or label.

S57 Use appropriate container to avoid environmental contamination.

| Hazard determining component(s) for labelling: PENDIMETHALIN

2.3. Other hazards

According to Regulation (EC) No 1272/2008 [CLP]

See section 12 - Results of PBT and vPvB assessment.

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

3.0 COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Not applicable

3.2. Mixtures

Chemical nature

crop protection product, herbicide, capsule suspension (CS)



Hazardous ingredients (GHS)
according to Regulation (EC) No. 1272/2008

pendimethalin (ISO); N-(1-ethylpropyl)-2,6-dinitro-3,4-xylidine
Content (W/W): 38.7 % Skin Sens. 1
CAS Number: 40487-42-1 Aquatic Acute 1
EC-Number: 254-938-2 Aquatic Chronic 1
INDEX-Number: 609-042-00-X H317, H400, H410

4,4'-Methylenediphenyl diisocyanate
Content (W/W): < 1 % Acute Tox. 4 (Inhalation - mist)
CAS Number: 101-68-8 Skin Corr./Irrit. 2
EC-Number: 202-966-0 Eye Dam./Irrit. 2
REACH registration number: 01-2119457014-47 Resp. Sens. 1
INDEX-Number: 615-005-00-9 Skin Sens. 1
Carc. 2
STOT SE 3 (irr. to respiratory syst.)
STOT RE 2
STOT RE (Olfactory organs) 2 (by inhalation)
H319, H315, H332, H334, H317, H335, H351,
H373, H373

methylenediphenyl diisocyanate
Content (W/W): < 1 % Acute Tox. 4 (Inhalation - dust)
CAS Number: 26447-40-5 Skin Corr./Irrit. 2
EC-Number: 247-714-0 Eye Dam./Irrit. 2
REACH registration number: 01-2119457015-45 Resp. Sens. 1
INDEX-Number: 615-005-00-9 Skin Sens. 1
Carc. 2
STOT SE 3 (irr. to respiratory syst.)
STOT RE 2
H319, H315, H332, H334, H317, H335, H351,
H373

| Isocyanic acid, polymethylenepolyphenylene ester
Content (W/W): < 1 % Acute Tox. 4 (Inhalation - vapour)
CAS Number: 9016-87-9 Skin Corr./Irrit. 2
Eye Dam./Irrit. 2
Resp. Sens. 1
Skin Sens. 1
Carc. 2
STOT SE 3 (irr. to respiratory syst.)
STOT RE 2
H319, H315, H332, H334, H317, H335, H351,
H373

| Sulfuric acid magnesium salt (1:1)



Content (W/W): < 20 %
CAS Number: 10034-99-8
EC-Number: 231-298-2

Hazardous ingredients
according to Directive 1999/45/EC

pendimethalin (ISO); N-(1-ethylpropyl)-2,6-dinitro-3,4-xylidine

Content (W/W): 38.7 %
CAS Number: 40487-42-1
EC-Number: 254-938-2
INDEX-Number: 609-042-00-X
Hazard symbol(s): Xi, N
R-phrase(s): 43, 50/53

4,4'-Methylenediphenyl diisocyanate Content

(W/W): < 1 % CAS
Number: 101-68-8
EC-Number: 202-966-0
REACH registration number: 01-2119457014-47
INDEX-Number: 615-005-00-9
Hazard symbol(s): Xn
R-phrase(s): 20, 36/37/38, 40, 42/43, 48/20
Carc. Cat. 3

methylenediphenyl diisocyanate

Content (W/W): < 1 %
CAS Number: 26447-40-5
EC-Number: 247-714-0
REACH registration number: 01-2119457015-45
INDEX-Number: 615-005-00-9
Hazard symbol(s): Xn
R-phrase(s): 20, 36/37/38, 40, 42/43, 48/20
Carc. Cat. 3

| Isocyanic acid, polymethylenepolyphenylene ester

Content (W/W): < 1 %
| CAS Number: 9016-87-9
Hazard symbol(s): Xn
R-phrase(s): 20, 36/37/38, 40, 42/43, 48/20
Carc. Cat. 3

| Sulfuric acid magnesium salt (1:1)

Content (W/W): < 20 %
| CAS Number: 10034-99-8
EC-Number: 231-298-2

For the classifications not written out in full in this section, including the indication of danger, the hazard symbols, the R phrases, and the hazard statements, the full text is listed in section 16.

4.0 FIRST AID MEASURES

4.1. Description of first aid measures

Remove contaminated clothing.

If inhaled:

Keep patient calm, remove to fresh air, seek medical attention.

On skin contact:

Wash thoroughly with soap and water.

On contact with eyes:

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

On ingestion:

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

4.2. Most important symptoms and effects, both acute and delayed

Symptoms: 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.

4.3. Indication of any immediate medical attention and special treatment needed

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

5.0 FIRE – FIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media:

water spray, foam, dry powder, carbon dioxide

5.2. Special hazards arising from the substance or mixture

carbon monoxide, Carbon dioxide, nitrogen oxides

The substances/groups of substances mentioned can be released in case of fire.

5.3. Advice for fire-fighters

Special protective equipment:

Wear self-contained breathing apparatus and chemical-protective clothing.

Further information:

Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations. In case of fire and/or explosion do not breathe fumes. Keep containers cool by spraying with water if exposed to fire.



6.0 ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Do not breathe vapour/spray. Use personal protective clothing. Avoid contact with the skin, eyes and clothing.

6.2. Environmental precautions

Do not discharge into drains/surface waters/groundwater. Do not discharge into the subsoil/soil.

6.3. Methods and material for containment and cleaning up

For small amounts: Pick up with suitable absorbent material (e.g. sand, sawdust, general-purpose binder, kieselguhr).

For large amounts: Dike spillage. Pump off product.

Dispose of absorbed material in accordance with regulations. Collect waste in suitable containers, which can be labeled and sealed. Clean contaminated floors and objects thoroughly with water and detergents, observing environmental regulations.

6.4. Reference to other sections

Information regarding exposure controls/personal protection and disposal considerations can be found in section 8 and 13.

7.0 HANDLING AND STORAGE

7.1. Precautions for safe handling

No special measures necessary if stored and handled correctly. Ensure thorough ventilation of stores and work areas. When using do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift.

Protection against fire and explosion:

No special precautions necessary. The substance/product is non-combustible. Product is not explosive.

7.2. Conditions for safe storage, including any incompatibilities

Segregate from foods and animal feeds.

Further information on storage conditions: Keep away from heat. Protect from direct sunlight.

Storage stability:

Storage duration: 36 Months

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.

7.3. Specific end use(s)

For the relevant identified use(s) listed in Section 1 the advice mentioned in this section 7 is to be observed.

8.0 EXPOSURE CONTROL/PERSONAL PROTECTION

8.1. Control parameters

Components with occupational exposure limits

101-68-8: 4,4'-Methylenediphenyl diisocyanate
9016-87-9: Isocyanic acid, polymethylenepolyphenylene ester (P-MDI)
10034-99-8: Sulfuric acid magnesium salt (1:1), heptahydrate
26447-40-5: methylenediphenyl diisocyanate

8.2. Exposure controls

Personal protective equipment

Respiratory protection:

Suitable respiratory protection for higher concentrations or long-term effect: Combination filter for gases/vapours of organic, inorganic, acid inorganic and alkaline compounds (e.g. EN 14387 Type ABEK).

Hand protection:

Suitable chemical resistant safety gloves (EN 374) also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN 374): E.g. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), butyl rubber (0.7 mm) and other

Eye protection:

Safety glasses with side-shields (frame goggles) (e.g. EN 166)

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

General safety and hygiene measures

The statements on personal protective equipment in the instructions for use apply when handling crop-protection agents in final-consumer packing. Wearing of closed work clothing is recommended. Store work clothing separately. Keep away from food, drink and animal feeding stuffs.

9.0 PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Form:	suspension
Colour:	yellow to brown
Odour:	faint odour, nutty
Odour threshold:	Not determined due to breath way sensitizing properties.



pH value:	approx. 8 - 10 (CIPAC standard water D, 1 %(m), 21 °C)
Melting point:	approx. 0 °C Information applies to the solvent.
Boiling point:	approx. 100 °C Information applies to the solvent.
Flash point:	No flash point - Measurement made up to the boiling point.
Evaporation rate:	not applicable
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.
Ignition temperature:	354 °C (DIN EN 14522)
Vapour pressure:	approx. 23 hPa (20 °C) Information applies to the solvent.
Density:	approx. 1.18 g/cm ³ (20 °C)
Relative vapour density (air):	not determined
Solubility in water:	dispersible
Partitioning coefficient n-octanol/water (log Kow):	not applicable
Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.
Viscosity, dynamic:	128 mPa.s (OECD 114) (20 °C, 100 1/s)
Explosion hazard:	not explosive
Fire promoting properties:	not fire-propagating

9.2. Other information

Other Information:

If necessary, information on other physical and chemical parameters is indicated in this section.



10.0 STABILITY AND RELIABILITY

10.1. Reactivity

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

10.2. Chemical stability

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

10.3. Possibility of hazardous reactions

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

10.4. Conditions to avoid

See MSDS section 7 - Handling and storage.

10.5. Incompatible materials

Substances to avoid:

strong acids, strong bases, strong oxidizing agents

10.6. Hazardous decomposition products

Hazardous decomposition products:

No hazardous decomposition products if stored and handled as prescribed/indicated.

11.0 TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute toxicity

Assessment of acute toxicity:

Virtually nontoxic after a single ingestion. Virtually nontoxic after a single skin contact. Virtually nontoxic by inhalation.

Experimental/calculated data:

LD50 rat (oral): > 5,000 mg/kg (OECD Guideline 401)

LC50 rat (by inhalation): > 5.23 mg/l 4 h (OECD Guideline 403)

No mortality was observed. An aerosol was tested.

LD50 rat (dermal): > 5,000 mg/kg (OECD Guideline 402)

Irritation

Assessment of irritating effects:

Not irritating to the eyes. Skin contact causes slight irritation.

Experimental/calculated data:



Skin corrosion/irritation rabbit: Irritant. (OECD Guideline 404)

Serious eye damage/irritation rabbit: non-irritant (OECD Guideline 405)

Respiratory/Skin sensitization

Assessment of sensitization:
Sensitization after skin contact possible.

Experimental/calculated data:
Mouse Local Lymph Node Assay (LLNA) guinea pig: sensitizing (OECD Guideline 406)

Germ cell mutagenicity

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 (ISO); N-(1-ethylpropyl)-2,6-dinitro-3,4-xylidine

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 counter part. In long-term studies in mice in which the substance was given by feed, a carcinogenic effect was not observed.

Information on: 4,4'-Methylenediphenyl diisocyanate

Assessment of carcinogenicity:

Indication of possible carcinogenic effect in animal tests. However, the relevance of this result for humans is unclear. IARC Group 3 (not classifiable as to human carcinogenicity).

Information on: methylenediphenyl diisocyanate

Assessment of carcinogenicity:

Indication of possible carcinogenic effect in animal tests. However, the relevance of this result for humans is unclear.

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.

Developmental toxicity

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



Information on: 4,4'-Methylenediphenyl diisocyanate

Assessment of teratogenicity:

The substance did not cause malformations in animal studies; however, toxicity to development was observed at high doses that were toxic to the parental animals.

Information on: methylenediphenyl diisocyanate

Assessment of teratogenicity:

The substance did not cause malformations in animal studies; however, toxicity to development was observed at high doses that were toxic to the parental animals.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure)

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 (ISO); N-(1-ethylpropyl)-2,6-dinitro-3,4-xylidine

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.

Information on: 4,4'-Methylenediphenyl diisocyanate

Information on: methylenediphenyl diisocyanate

Assessment of repeated dose toxicity:

After repeated exposure the prominent effect is local irritation. The substance may cause damage to the olfactory epithelium after repeated inhalation.

Other relevant toxicity information

Misuse can be harmful to health.

12.0 ECOLOGICAL INFORMATION

12.1. Toxicity

Assessment of aquatic toxicity:

Acutely toxic for aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Toxicity to fish:

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

| LC50 (96 h) 88.4 mg/l, *Cyprinus carpio* (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)

| EC50 (72 h) 19.25 mg/l (growth rate), *Lemna gibba* (OECD guideline 221)

12.2. Persistence and degradability

Assessment biodegradation and elimination (H₂O):

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

Information on: pendimethalin (ISO); N-(1-ethylpropyl)-2,6-dinitro-3,4-xylidine

Assessment biodegradation and elimination (H₂O):

Not readily biodegradable (by OECD criteria).

12.3. Bioaccumulative potential

Assessment bioaccumulation potential:

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

Information on: pendimethalin (ISO); N-(1-ethylpropyl)-2,6-dinitro-3,4-xylidine

Bioaccumulation potential:

Bioconcentration factor: 5, 100

Based on a weight of evidence, the compound will not bioaccumulate.

12.4. 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 (ISO); N-(1-ethylpropyl)-2,6-dinitro-3,4-xylidine

Assessment transport between environmental compartments:

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.

12.5. Results of PBT and vPvB assessment

The product does not contain a substance fulfilling the PBT (persistent/bioaccumulative/toxic) criteria or the vPvB (very persistent/very bioaccumulative) criteria.

12.6. Other adverse effects

The product does not contain substances that are listed in Regulation (EC) 1005/2009 on substances that deplete the ozone layer.

12.7. Additional information



Other ecotoxicological advice:
Do not discharge product into the environment without control.

13.0 DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Must be sent to a suitable incineration plant, observing local regulations.

Contaminated packaging:
Contaminated packaging should be emptied as far as possible and disposed of in the same manner as the substance/product.

14.0 TRANSPORT INFORMATION

Land transport

ADR

UN number	UN3082
UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains PENDIMETHALIN)
Transport hazard class(es):	9, EHSM
Packing group:	III
Environmental hazards:	yes
Special precautions for user:	Tunnel code: E

RID

UN number	UN3082
UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains PENDIMETHALIN)
Transport hazard class(es):	9, EHSM
Packing group:	III
Environmental hazards:	yes
Special precautions for user:	None known

Inland waterway transport

ADN

UN number	UN3082
UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains PENDIMETHALIN)
Transport hazard class(es):	9, EHSM



Packing group:	III
Environmental hazards:	yes
Special precautions for user:	None known
Transport in inland waterway vessel:	Not evaluated

Sea transport

IMDG

UN number:	UN 3082
UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains PENDIMETHALIN)
Transport hazard class(es):	9, EHSM
Packing group:	III
Environmental hazards:	yes
	Marine pollutant: YES
Special precautions for user:	None known

Air transport

IATA/ICAO

UN number:	UN 3082
UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains PENDIMETHALIN)
Transport hazard class(es):	9, EHSM
Packing group:	III
Environmental hazards:	yes
Special precautions for user:	None known

14.1. UN number

See corresponding entries for "UN number" for the respective regulations in the tables above.

14.2. UN proper shipping name

See corresponding entries for "UN proper shipping name" for the respective regulations in the tables above.

14.3. Transport hazard class(es)

See corresponding entries for "Transport hazard class(es)" for the respective regulations in the tables above.

14.4. Packing group

See corresponding entries for "Packing group" for the respective regulations in the tables above.

14.5. Environmental hazards

See corresponding entries for “Environmental hazards” for the respective regulations in the tables above.

14.6. Special precautions for user

See corresponding entries for “Special precautions for user” for the respective regulations in the tables above.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Regulation:	Not evaluated
Shipment approved:	Not evaluated
Pollution name:	Not evaluated
Pollution category:	Not evaluated
Ship Type:	Not evaluated

15.0 REGULATORY INFORMATION

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

Prohibitions, Restrictions and Authorizations

Annex XVII of Regulation (EC) No 1907/2006: Number on List: 28, 40, 56

For the user of this plant-protective product applies: 'To avoid risks to man and the environment, comply with the instructions for use.' (Directive 1999/45/EC, Article 10, No. 1.2)

15.2. Chemical Safety Assessment

Advice on product handling can be found in sections 7 and 8 of this safety data sheet.

16.0 OTHER INFORMATION

The information contained herein relates only to the specified material identified. CIBA AGRIPHARMA., believes that such information is accurate and reliable as of the data of this material safety data sheet, but no representation, guarantee or warranty, expressed or implied, is made as to the accuracy, reliability, or completeness of the information. CIBA AGRIPHARMA urges persons receiving this information to make their own determination as to the information's suitability and completeness for their particular application. No liability will be accepted for any injury, loss or damage resulting from any failure to take account of information or advice contained in this safety data sheet.