Material Safety Date Sheet (MSDS)
Smart Stop

IDENTIFICATION OF THE SUPPLIER:

Agro Chemical Industries LTD (ACI)
Jordan Amman
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PRODUCT IDENTIFICATION:

Common Name: pendimethalin 440 g/l
Trade Name: Smart Stop
Chemical Name: N-(1-ethylpropyl)-2,6-dinitro-3,4-xylidene
Chemical Formula: $C_{13}H_{19}N_3O_4$
Molecular Weight: 281.3

PRODUCT COMPOSITION:

Active Ingredient:	***g/l***	***CAS #***
pendimethalin	440	*[*40487-42-1*]*

Inert ingredient: up to 1 liter

HAZARD IDENTIFICATION:

HAZARDOUS SUBSTANCE, DANGEROUS GOOD
Irritating to eyes.
Use of this product is not necessary in areas supplied with fluoridated water.
Harmful: may cause lung damage if swallowed.
Repeated exposure may cause skin dryness or cracking.
Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Keep out of the reach of children.
Keep away from food, drink and animal feeding stuffs.
When using do not eat, drink or smoke.
Avoid contact with skin.
Do not empty into drains.
This material and its container must be disposed of in a safe way.
Wear suitable gloves.
If swallowed, seek medical advice immediately and show this container or label.
Use appropriate container to avoid environmental contamination.

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.

On skin contact:
Immediately wash thoroughly with soap and water, seek medical attention.

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. Do not induce vomiting due to aspiration hazard.

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

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FIRE-FIGHTING MEASURES: -

Suitable extinguishing media:
water spray, dry powder, foam, carbon dioxide
Specific hazards:
carbon monoxide, carbon dioxide, nitrogen oxides
The substances/groups of substances mentioned can be released in case of fire.
Special protective equipment:
Wear self-contained breathing apparatus and chemical-protective clothing.
Further information:
Keep containers cool by spraying with water if exposed to fire. In case of fire and/or explosion do not breathe fumes. 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.

ACCIDENTAL RELEASE MEASURES:

Personal precautions:
Do not breathe vapour/spray. Use personal protective clothing. Avoid contact with the skin, eyes and clothing.
Environmental precautions:
Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater.
Methods for cleaning up or taking 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.

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PHYSICAL AND CHEMICAL DATA:

Form:	liquid
Colour:	black clear
Odour:	solvent-like
pH value	approx. 6 - 7 (1 %(m), approx. 20 °C)
crystallization temperature:	approx. -7 - 0 °C
boiling temperature	approx. 183 - 210 °C Information applies to the solvent.
Flash point:	> 65 °C
Flammability:	not applicable
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.

Information on: solvent naphtha

Ignition temperature:	449 - 510 °C Literature data.
Explosion hazard:	not explosive
Fire promoting properties:	not fire-propagating
Vapour pressure:	not applicable

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Density:	approx. 1.075 g/cm3 (20 °C)
Relative vapour density (air):	not applicable
Solubility in water:	emulsifiable
Partitioning coefficient n-octanol/water (log Pow):	not applicable
Viscosity, kinematic:	approx. 7 mm2/s (40 °C) The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

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

STABILITY AND REACTIVITY DATA:

Thermal decomposition: No decomposition if stored and handled as prescribed/indicated.
Substances to avoid: strong acids, strong bases, strong oxidizing agents
Hazardous reactions: No hazardous reactions if stored and handled as prescribed/indicated.
Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated.

EXPOSURE CONTROLS / PERSONAL PROTECTION

Components with occupational exposure limits
No exposure standard allocated

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.

HANDLING AND STORAGE:

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:
Vapours may form ignitable mixture with air. Prevent electrostatic charge - sources of ignition should be kept well clear - fire extinguishers should be kept handy.

Storage
Segregate from foods and animal feeds.
Further information on storage conditions: Keep away from heat. Protect from direct sunlight.

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.

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TOXICOLOGICAL INFORMATION:

Acute toxicity

Assessment of acute toxicity:
The product has not been tested. The statement has been derived from the properties of the individual components. Virtually nontoxic after a single ingestion. Virtually nontoxic by inhalation. Virtually nontoxic after a single skin contact.
Information on: pendimethalin
LD50 rat (oral): 4,665 mg/kg (OECD Guideline 401)

Information on: pendimethalin
LC50 rat (by inhalation): > 6.73 mg/l 4 h (OECD Guideline 403)
An aerosol was tested.

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

Irritation

Assessment of irritating effects:
Not irritating to the skin. Eye contact causes irritation.
Primary skin irritation rabbit: non-irritant
Primary irritations of the mucous membrane rabbit: Irritant.

Sensitization

Assessment of sensitization:
The product has not been tested. The statement has been derived from the properties of the individual components. Sensitization after skin contact possible.

Information on: pendimethalin
Guinea pig maximization test guinea pig: Non-sensitizing.
The European Union (EU) has classified this substance as skin-sensitizing (R43).

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.

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

Information on: solvent naphtha
Assessment of repeated dose toxicity:
No adverse effects were observed after repeated exposure in animal studies. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

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

Information on: solvent naphtha
Assessment of carcinogenicity:
Long-term exposure to highly irritating concentrations resulted in skin tumors in animals. A carcinogenic effect in humans can be excluded after brief skin contact. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

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.

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Developmental toxicity

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.

Other relevant toxicity information
Has a degreasing effect on skin. Misuse can be harmful to health.

ECOLOGICAL INFORMATION:

Ecotoxicity

Assessment of aquatic toxicity:
Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment. The product has not been tested. The statement has been derived from the properties of the individual components.
Information on: pendimethalin
Toxicity to fish:
LC50 (96 h) 0.89 mg/l, Oncorhynchus mykiss (static)

Information on: pendimethalin
Aquatic invertebrates:
EC50 (48 h) 0.4 mg/l, Daphnia magna (static)
EC50 (48 h) 7.73 mg/l, Daphnia magna (OECD Guideline 202, part 1, static)

Information on: pendimethalin
Aquatic plants:
EC50 (5 d) 0.005 mg/l, Skeletonema costatum (static)

Mobility

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
Assessment transport between environmental compartments:

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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.

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
Assessment biodegradation and elimination (H2O):
Not readily biodegradable (by OECD criteria).

Bioaccumulation 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
Bioaccumulation potential:
Bioconcentration factor: 5,100
Based on a weight of evidence, the compound will not bioaccumulate.

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

DISPOSAL CONSIDERATIONS:

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.

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