

**MATERIAL SAFETY DATA SHEET**

**SUBJECT:** MSMA 720 SL  
**DOCUMENT NO:** PS 057  
**EFFECTIVE DATE:** AUGUST 1997  
**REVISION DATE:** FEBRUARY 2001  
**REVISION NO:** 3  
**PAGE:** 1 of 4  
**PRODUCT CODE:** -

**SUPPLIER:** DOW AGROSCIENCES (PTY) LTD  
Private Bag X55,  
Bryanston.  
2021

**EMERGENCY TELEPHONE NUMBERS****SPILLAGES:**

**Emergency telephone** (+27) 032 5330716 or  
082 887 8079

**Fax** (+27) 032 5336134

**POISONINGS:**

**National Poison Centre** 021-9386084 (office hours).  
021-9316129 (after hours).  
0800 333 444 (24 H)

**UOFS Pharmacology/Toxicology information centre:**  
082 491 0160

**1. IDENTIFICATION OF THE SUBSTANCE**

**Trade Name** MSMA 720 SL  
**Active ingredient** MSMA  
**Chemical Name** sodium hydrogen  
methylarsonate (IUPAC)  
**CAS No.** 2163-80-6  
**Chemical Family** Organoarsenic (Pentavalent)  
**Chemical Formula** CH<sub>4</sub>AsNaO<sub>3</sub> (Mol. wt: 162.0)  
**NIOSH/RTECS no.** PA2625000  
**Use** Selective pre-emergence contact  
herbicide, with some systemic  
properties.  
**UN no.** Not regulated

**2. COMPOSITION / INFORMATION ON INGREDIENTS**

**Hazardous components** monosodium methylarsonate plus,  
surfactant  
**EEC number** Not applicable.  
**RISK-PHASE(S)** R 22, R36/37/38, R 55

**3. HAZARD IDENTIFICATION****Toxicity class:**

WHO III; EPA III.

A moderately toxic herbicide.

**Main hazard:**

Harmful. The pentavalent arsenicals are relatively water soluble and absorbable across mucous membranes.

**Eye contact:**

May cause eye irritation.

**Skin contact:**

Minimally toxic. May cause mild skin irritation.

**Ingestion:**

Toxic by ingestion.

**Inhalation:**

Minimally toxic. The surfactant in MSMA might cause irritation to the mucous membranes.

**4. FIRST AID MEASURES AND PRECAUTIONS**

Symptoms of acute poisoning may appear within one hour of ingestion

**Inhalation:**

Remove source of contamination or move victim to fresh air. If breathing has stopped, perform artificial respiration and administer oxygen. Keep person warm and at rest. Treat symptomatically and supportively as and when required. Obtain medical advice if necessary.

**Skin contact:**

Remove contaminated clothing, shoes and leather goods. Gently wipe off excess chemical. Wash skin gently and thoroughly with water and non-abrasive soap. Seek medical attention if necessary. The product is not considered to be a dermal sensitiser, but persons who become sensitised may require specialised medical management with anti-inflammatory agents.

**Eye contact:**

Immediately flush the contaminated eyes with gently flowing lukewarm water or saline solution for 20 minutes, holding the eyelid(s) open. Seek medical attention if necessary.

**Ingestion:**

Have victim rinse mouth thoroughly with water. Remove by gastric lavage or emesis, followed by saline cathartic. Give oxygen if respiration is depressed. Administration of gastric lavage or oxygen should be performed by qualified medical personnel. Seek medical advice.

**Advice to physician:**

Dimercaprol is recommended as an antidote for arsenic poisoning. The antidote should only be administered by qualified medical personnel. Treat symptomatically and supportively as and when required. When large amounts have been ingested, gastric lavage or emesis, and the administration of activated charcoal with water may be indicated. Do not perform gastric lavage if patient is unconscious.

**5. FIRE FIGHTING MEASURES**

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**Extinguishing agents:**

**Small fires:** Extinguish with carbon dioxide, dry powder, halon or alcohol-resistant foam.

**Large fires:** Carbon dioxide, dry powder, halon or alcohol-resistant foam. Water spray or fog can be used for or cooling of unaffected stock, but avoid the accumulation of polluted run-off from the site.

Remove container from fire area if possible. Contain fire control water for later disposal. Use a recommended extinguishing agent for the type of surrounding fire.

Avoid inhaling hazardous vapours. Keep material away from water sources and sewers. Do not touch material and avoid breathing fumes. Keep upwind.

**Special hazards:**

Fire may produce irritating or poisonous vapours (arsenicoxides and oxides of sodium), mists or other products of combustion.

**Personal protective equipment:**

Fire-fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus.

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**6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)****Personal precautions:**

Avoid contact with skin and eyes. Do not inhale fumes. For personal protection see Section 8. In view of the toxicity induced in experimental animals on repeated exposure, proper care should be taken during occupational use to avoid ingestion of spray particles, and to prevent accidental contamination of food products and water.

**Environmental precautions:**

Do not allow to enter drains or water courses. When the product contaminates public waters, inform appropriate authorities in accordance with local regulations.

**Occupational spill:** For **small liquid spills**, soak up with sand or other suitable noncombustible absorbent material, such as sawdust, and place into containers for subsequent disposal. For **large spills**, contain liquid far ahead of spill. Contain spillage and contaminated water for subsequent disposal. Do not flush spilled material into drains. Keep spectators away.

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**7. HANDLING AND STORAGE REQUIREMENTS****Handling:**

Harmful if swallowed. Avoid contact with eyes, prolonged contact with skin, and inhalation of fumes or spray mist. Use with adequate ventilation. Wash hands before eating, drinking, chewing gum, smoking, or using the toilet. Remove clothing immediately if the herbicide gets inside. Then wash skin thoroughly using a non-abrasive soap and put on clean clothing. Do not apply directly to areas where surface water is present, or to intertidal areas below the mean high water mark. Water used to clean equipment must be disposed of correctly to avoid contamination.

**Storage:**

Store in its original labeled container in a shaded, well-ventilated area, away from heat, sparks and other sources of ignition. Not to be stored next to foodstuffs and water supplies. Keep out of reach of children and animals. Local regulations should be complied with.

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**8. EXPOSURE CONTROL / PERSONAL PROTECTION****Occupational exposure limits:**

**TLV (as As):** 0.2 ppm; mg/m<sup>3</sup> (ACGIH 1991-1992)

**Engineering control measures:**

It is essential to provide adequate ventilation. The measures appropriate for a particular work site depend on how this material is used and on the extent of exposure. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire, and other applicable regulations. If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection.

**Respirator:**

An approved respirator suitable for protection from spray mists of pesticides is adequate. Limitations of respirator use specified by the approving agency and the manufacturer must be observed.

**Clothing:**

Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance.

**Gloves:**

Employee must wear appropriate synthetic protective gloves to prevent contact with this substance.

**Eye protection:**

The use of safety goggles is recommended.

*Emergency eye wash:* Where there is any possibility that an employee's eyes may be exposed to this substance, the employer should provide an eye wash fountain or appropriate alternative within the immediate work area for emergency use.

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**9. PHYSICAL AND CHEMICAL PROPERTIES****Appearance:**

A light green to slightly yellow liquid.

**Odour:**

Slight sweetish odour.

**Free arsenic:**

0,1% max.

**Explosive properties:**

Non explosive.

**Flammability:**

Non flammable. The product contains water.

**Corrosive properties:**

Corrosive to mild steel, aluminum, copper and tin

**pH:**

5.25 - 6.5 (neat).

**Density:**

1.5 g/ml

**Storage stability:**

Stable for up to 2 years under normal warehouse storage conditions. The product is stable after 14 days at 54 °C (accelerated storage test), and after 3 months at both 25 °C and -3 °C.

**Solubility in water:**

Readily soluble in water.

**Solubility in organic solvents:** (*data for active ingredient*)

The product is soluble in methanol, but is insoluble in most organic solvents.

**Flash point:**

Not applicable.

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**10. STABILITY AND REACTIVITY****Stability:**

The product is stable to hydrolysis, but is decomposed by strong oxidising and reducing agents.

**Incompatibility:**

Spray solutions containing this product should be mixed, stored or applied using, fiberglass or plastic-lined containers and equipment. The product is corrosive to mild steel. The product is compatible with many herbicides when used at normal rates. However, a compatibility test is required before using with other products. Do not physically mix concentrate directly with other herbicides or pesticide concentrates; always dilute first.

**Hazardous decomposition products:**

Toxic fumes of arsenic oxides and toxic oxides of sodium are released when the product decomposes on heating.

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**11. TOXICOLOGICAL INFORMATION****Acute oral LD<sub>50</sub> :**

1 824 mg/kg in male rats.

**Acute dermal LD<sub>50</sub> :**

> 2 856 mg/kg in male rats.

**Acute inhalation LC<sub>50</sub> (4 h) :**

> 5.260 mg/ℓ of air.

**Acute skin irritation:**

The product may cause mild skin irritation (rabbits).

**Acute eye irritation:**

The product may cause mild eye irritation (rabbits).

**Dermal sensitisation:**

Not determined, due to the induced toxicity of the product.

**Carcinogenicity:**

Inadequate data available on organoarsenic products to determine product carcinogenicity

**Teratogenicity:**

Animal studies did not detect teratogenic effects.

**Mutagenicity:**

Animal studies did not detect mutagenic activity.

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**12. ECOLOGICAL INFORMATION**

**MSMA can be highly toxic to grazing stock and wildlife.** It must only be used with the utmost caution and under supervision. The user is therefore warned that stock (or wildlife) must not be allowed to graze treated areas until at least one month has passed after treatment of jointed and other cacti and two months after treatment of prickly pear. Do not treat prickly pear during dry periods when no other source of fresh food is available (usually June to September -in South Africa).

**ECOTOXICOLOGY:****Birds:**

(*data for Mesanate 960TK*)

Low toxicity to birds.

LD<sub>50</sub> : 425.2 g/kg (quail).

LC<sub>50</sub> (5 day dietary): 1 667 ppm (quail).

> 2 866 ppm (mallard ducks).

**Fish:**

Non toxic to fish.

LC<sub>50</sub> (96 hr): > 100 mg/ℓ (Common carp- *Cyprinus carpio*)

**Bees:**

Toxic to bees.

LD<sub>50</sub> : 12,7061 µg a.i./bee

**Daphnia:**

(*data for MSMA active*)

LC<sub>50</sub> (48 h): 77.5 mg/L

**Earthworms:**

LC<sub>50</sub> (14-day): > 2 388,89 mg/kg silicon of MSMA 720 SL.

**Single cell green alga (*Scenedesmus subspicatus*):**

Growth rate- E<sub>r</sub>C<sub>50</sub>: 55,4

Biomass - E<sub>b</sub>C<sub>50</sub>: 167,3

**Degradability:**

The product is metabolised by micro-organisms in the soil, the metabolites being CO<sub>2</sub> and arsenate. Product half-life is 55 days. Product degradation due to photodecomposition and volatilisation is negligible.

**Mobility:**

The product is adsorbed by clay soils, but downward leaching may occur.

**Accumulation:**

The product shows little or no tendency to bioaccumulate.

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**13. DISPOSAL CONSIDERATION****Pesticide disposal:**

Contaminated absorbents, surplus product (in diluted form), etc., should be buried in approved landfill. The disposal area should not be subjected to flooding and must be sited well away from streams, springs, dams and wells. The waste area must be securely denied off and labeled with warning signs. Comply with any local legislation applying to waste disposal.

**Package product wastes:**

Emptied containers retain vapour and product residues. Observe all labeled safeguards until container is cleaned, reconditioned, or destroyed. Containers must be triple rinsed with water and should not be reused. Puncture and transport to a scrap metal facility for disposal in approved landfill site. Comply with any local legislation applying to disposal.

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**14. TRANSPORT INFORMATION**

**UN NUMBER:** NOT REGULATED

**ADR/RID:** NOT REGULATED

**IMDG/IMO:** NOT REGULATED

**ICAO/IATA:** NOT REGULATED

**TREMCARD:** NOT REGULATED

**DOT classification** For DOT regulatory information, if required, consult transportation regulations, product shipping papers, or contact your Dow AgroSciences representative.

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**15. REGULATORY INFORMATION**

**Symbol :** Xn, Xi

**Indication of danger:** Harmful. Irritant.

**Risk phrases :**

**R 22** Harmful if swallowed.

**R36/37/38** Irritating to eyes skin and respiratory system.

**R 55** Toxic to fauna

**Safety phrases:**

**S 2** Keep out of reach children.

**S22** Do not breathe spray.

**S 36/37/39** Wear suitable protective clothing, gloves and eye/face protection.

**S 46** If swallowed, seek medical advice immediately and show this container and label.

**National legislation:** In accordance with 91/155/EEC

Directive and with French standard T 01-102 and the South African Occupational Health and Safety Act, 1993 (Act. No. 85 of 1993).

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**16. OTHER INFORMATION**

**Compiled by:** Elizna Bradfield

**Approved by:** Danie Fourie

All information and instructions provided in this Material Safety Data Sheet (MSDS) are based on the current state of scientific and technical knowledge at the date indicated on the present MSDS and are presented in good faith and believed to be correct. This information applies to the PRODUCT AS SUCH. In case of new formulations or mixes, it is necessary to ascertain that a new danger will not appear. It is the responsibility of persons in receipt of this MSDS to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. If the recipient subsequently produces formulations(s) containing this product, it is the recipients sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.

**REFERENCES**

- Applicable own physical and chemical, toxicity and ecotoxicity research studies.
- *The Pesticide Manual*; Eleventh Edition; Editor Clive Tomlin; Crop Protection Publications, 1997.
- *Agriculture and Public Health*; Guide to the Treatment of Poisoning by Chemicals, 1993.



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- *EU Classification Criterion( 78/6310), Pesticides Directive.1998.*
- *South African MSMA label.*
- *Dangerous Goods Regulations, IATA, 42<sup>nd</sup> Edition, 1 January 2001.*
- *Surfactant MSDS, 10/03/1999.*