SAFETY DATA SHEET

Iprodione SC 500

Revision: Sections containing a revision or new information are marked with a ♣.

♣ SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. **Product identifier** ..... **Iprodione SC 500**
Contains iprodione

1.2. **Relevant identified uses of the substance or mixture and uses advised against** ..... Can be used as fungicide only.

1.3. **Details of the supplier of the safety data sheet**

CHEMINOVA A/S, a subsidiary of FMC Corporation
Thyborønvej 78
DK-7673 Harboøre
Denmark
SDS.Ronland@fmc.com

1.4. **Emergency telephone number**

Medical emergencies:

Austria: +43 1 406 43 43
Belgium: +32 70 245 245
Bulgaria: +359 2 9154 409
Cyprus: 1401
Czech Republic: +420 224 919 293
+420 224 915 402
Denmark: +45 82 12 12 12
France: +33 (0) 1 45 42 59 59
Finland: +358 9 471 977
Greece: 30 210 77 93 777
Hungary: +36 80 20 11 99
Ireland (Republic): +352 1 809 2166
Italy: +39 02 6610 1029
Lithuania: +370 523 62052
+370 687 53378
Luxembourg: +352 8002 5500
Netherlands: +31 30 274 88 88
Norway: +47 22 591300
Poland: +48 22 619 66 54
+48 22 619 08 97
Portugal: 808 250 143 (in Portugal only)
+351 21 330 3284
Romania: +40 21318 3606
Slovakia: +421 2 54 77 4 166
Slovenia: +386 41 650 500
Spain: +34 91 562 04 20
Sweden: +46 08-331231
112
Switzerland: 145
United Kingdom: 0870 600 6266 (in the UK only)
U.S.A. & Canada: +1 800 / 331-3148 (ProPharma)
All other countries: +1 651 / 632-6793 (ProPharma - Collect)

For fire, leak, spill or other accident emergencies:

U.S.A.: +1 800 / 424 9300 (CHEMTREC)
All other countries: +1 703 / 527 3887 (CHEMTREC - Collect)

♣ SECTION 2: HAZARDS IDENTIFICATION

2.1. **Classification of the substance or mixture**

Carcinogenicity: Category 2 (H351)
Hazards to the aquatic environment, acute: Category 1 (H400)
chronic: Category 1 (H410)

WHO classification ..... Class U (unlikely to present acute hazard in normal use)

Health hazards ..... The active ingredient iprodione is suspected of causing cancer.

Environmental hazards ..... The product is very toxic to aquatic organisms.

2.2. **Label elements**

According to EU Reg. 1272/2008 as amended

Product identifier ..... Iprodione SC 500
Contains iprodione

Hazard pictograms (GHS08, GHS09)

Signal word ..... Warning

Hazard statements
H351 ..... Suspected of causing cancer.
H410 ..... Very toxic to aquatic life with long lasting effects.

Supplementary hazard statement
EUH401 ..... To avoid risks to human health and the environment, comply with the instructions of use.

Precautionary statements
P201 ..... Obtain special instructions before use.
P202 ..... Do not handle until all safety precautions have been read and understood.
P273 ..... Avoid release to the environment.
P280 ..... Wear protective gloves, protective clothing and eye protection.
P308+P313 ..... IF exposed or concerned: Get medical attention/advice.
P501 ..... Dispose of contents/container as hazardous waste.

2.3. **Other hazards** ..... None of the ingredients in the product meets the criteria for being PBT or vPvB.

♣ SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. **Substances** ..... The product is a mixture, not a substance

3.2. **Mixtures** ..... See section 16 for full text of hazard statements.

Active ingredient

Iprodione ..... Content: 41% by weight
CAS name ..... 1-Imidazolidinecarboxamide, 3-(3,5-dichlorophenyl)-N-(1-methyl-ethyl)-2,4-dioxo-
CAS no. 36734-19-7
IUPAC name ..... 3-(3,5-Dichlorophenyl)-N-isopropyl-2,4-dioxoimidazolidine-1-carboxamide
ISO name/EU name ..... Iprodione
EC no. (EINECS no.) 253-178-9

EU index no. 616-054-00-9
Molecular weight 330.2
Classification of the ingredient ..... Carcinogenicity: Category 2 (H351)
Hazards to the aquatic environment, acute: Category 1 (H400)
chronic: Category 1 (H410)

Reportable ingredient	Content (% w/w)	CAS no.	EC no. (EINECS no.)	Classification
Propane-1,2-diol Reg. no. 01-2119456809-23	< 8	57-55-6	200-338-0	Not classified

♣ SECTION 4: FIRST AID MEASURES

4.1. **Description of first aid measures**

Inhalation ..... If experiencing any discomfort, immediately remove from exposure. Light cases: Keep person under surveillance. Get medical attention immediately if symptoms develop. Serious cases: Get medical attention immediately or call for an ambulance.

Skin contact ..... Immediately remove contaminated clothing and footwear. Flush skin with water. Wash with water and soap. Get medical attention if any symptom develops.

Eye contact ..... Immediately rinse eyes with much water or eyewash solution, occasionally opening eyelids, until no evidence of chemical remains. Remove contact lenses after a few minutes and rinse again. Get medical attention if irritation develops.

Ingestion ..... Let the exposed person rinse mouth and drink several glasses of water or milk, but not induce vomiting. If vomiting does occur, let him/her rinse mouth and drink fluids again. Get medical attention immediately.

4.2. **Most important symptoms and effects, both acute and delayed** — In animal tests on iprodione, the main symptom was reduced activity.

4.3. **Indication of any immediate medical attention and special treatment needed** — Immediate medical attention is required in case of ingestion.

It may be helpful to show this safety data sheet to physician.

Notes to physician ..... A specific antidote for exposure to this material is not known. Gastric lavage and/or the administration of activated charcoal can be considered. After decontamination, treatment should be directed at the control of symptoms and the clinical condition.

♣ SECTION 5: FIRE-FIGHTING MEASURES

5.1. **Extinguishing media** ..... Dry chemical or carbon dioxide for small fires, water spray or foam for large fires. Avoid heavy hose streams.

5.2. **Special hazards arising from the substance or mixture** — The essential breakdown products are volatile, malodorous, toxic, irritant and inflammable compounds such as hydrogen chloride, nitrogen oxides, carbon monoxide, carbon dioxide and various chlorinated organic compounds.

5.3. **Advice for firefighters** ..... Use water spray to keep fire-exposed containers cool. Approach fire from upwind to avoid hazardous vapours and toxic decomposition products. Fight fire from protected location or maximum possible distance. Dike area to prevent water runoff. Firemen should wear self-contained breathing apparatus and protective clothing.

♣ SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. **Personal precautions, protective equipment and emergency procedures**

It is recommended to have a predetermined plan for the handling of spills. Empty, closable vessels for the collection of spills should be available.

In case of large spill (involving 10 tonnes of the product or more):
1. use personal protection equipment; see section 8
2. call emergency telephone no.; see section 1
3. alert authorities.

Observe all safety precautions when cleaning up spills. Use personal protection equipment. Depending on the magnitude of the spill this may mean wearing respirator, face mask or eye protection, chemical resistant clothing, gloves and rubber boots.

Stop the source of the spill immediately if safe to do so. Keep unprotected persons away from the spill area.

6.2. **Environmental precautions** ..... Contain the spill to prevent any further contamination of surface, soil or water. Wash waters must be prevented from entering surface water drains. Uncontrolled discharge into water courses must be alerted to the appropriate regulatory body.

6.3. **Methods and materials for containment and cleaning up**

It is recommended to consider possibilities to prevent damaging effects of spills, such as bunding or capping. See GHS (Annex 4, Section 6).

If appropriate, surface water drains should be covered. Minor spills on the floor or other impervious surface should be absorbed onto an absorptive material such as universal binder, attapulgite, bentonite or other absorbent clays. Collect the contaminated absorbent in suitable containers. Clean area with much water and industrial detergent. Absorb wash liquid onto absorbent and transfer to suitable containers. The used containers should be properly closed and labelled.

Large spills which soak into the ground should be dug up and transferred to suitable containers.

Spills in water should be contained as much as possible by isolation of the contaminated water. The contaminated water must be collected and removed for treatment or disposal.

6.4. **Reference to other sections** ..... See subsection 8.2. for personal protection.
See section 13 for disposal.

♣ SECTION 7: HANDLING AND STORAGE

7.1. **Precautions for safe handling** ..... In an industrial environment it is recommended to avoid all personal

contact with the product, if possible by using closed systems with remote system control. The material should be handled by mechanical means as much as possible. Adequate ventilation or local exhaust ventilation is required. The exhaust gases should be filtered or treated otherwise. For personal protection in this situation, see section 8.

For its use as a pesticide, first look for precautions and personal protection measures on the officially approved label on the packaging or for other official guidance or policy in force. If these are lacking, see section 8.

Remove contaminated clothing immediately. Wash thoroughly after handling. Before removing gloves, wash them with water and soap. After work, take off all work clothes and footwear. Take a shower, using water and soap. Wear only clean clothes when leaving job. Wash protective clothing and protective equipment with water and soap after each use.

Do not discharge to the environment. Do not contaminate water when disposing of equipment wash waters. Collect all waste material and remains from cleaning equipment, etc., and dispose of as hazardous waste. See section 13 for disposal.

7.2. **Conditions for safe storage, including any incompatibilities**

The product is stable under normal conditions of warehouse storage.

Store in closed, labelled containers. The storage room should be constructed of incombustible material, closed, dry, ventilated and with impermeable floor, without access of unauthorised persons or children. A warning sign reading "POISON" is recommended. The room should only be used for storage of chemicals. Food, drink, feed and seed should not be present. A hand wash station should be available.

7.3. **Specific end use(s)** .....

The product is a registered pesticide which may only be used for the applications it is registered for, in accordance with a label approved by the regulatory authorities.

♣ SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. **Control parameters**

Personal exposure limits ..... To our knowledge not established for the active ingredient in this product.

		Year	
Propane-1,2-diol	AIHA (USA) WEEL	2015	10 mg/m^3
	MAK (Germany)	2014	Cannot be established at present
	HSE (UK) WEL	2011	8-hr TWA 150 ppm (474 mg/m^3), total (vapour and particulates) 10 mg/m^3 (particulates)

However, other personal exposure limits defined by local regulations may exist and must be observed.

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DNEL, systemic ..... 0.3 mg/kg bw/day

PNEC, aquatic environment ..... 1.7 µg/l

Propane-1,2-diol

DNEL, inhalation, systemic	183 mg/m^3
DNEL, inhalation, local	10 mg/m^3
PNEC, fresh water	260 mg/l
PNEC, marine water	26 mg/l

8.2. **Exposure controls** .....

When used in a closed system, personal protection equipment will not be required. The following is meant for other situations, when the use of a closed system is not possible, or when it is necessary to open the system. Consider the need to render equipment or piping systems non-hazardous before opening.

The precautions mentioned below are primarily meant for handling of the undiluted product and for preparing the spray solution, but can be recommended for spraying as well.

In cases of incidental high exposure, maximal personal protection may be necessary, such as respirator, face mask, chemical resistant coveralls.

Respiratory protection

The product does not automatically present an airborne exposure concern when handled carefully, but in the event of an accidental discharge of the material which produces a heavy vapour or mist, workers must put on officially approved respiratory protection equipment with a universal filter type including particle filter.

Protective gloves .....

Wear chemical resistant gloves, such as barrier laminate, butyl rubber or nitrile rubber. The breakthrough times of these materials for the product are unknown, but it is expected that they will give adequate protection. It is recommended to limit the work to be done manually.

Eye protection .....

Wear safety glasses. It is recommended to have an eye wash fountain immediately available in the workplace when there is a potential for eye contact.

Other skin protection

Wear appropriate chemical resistant clothing to prevent skin contact depending on the extent of exposure. During most normal work situations where exposure to the material cannot be avoided for a limited time span, waterproof pants and apron of chemical resistant material or coveralls of polyethylene (PE) will be sufficient. Coveralls of PE must be discarded after use if contaminated. In cases of excessive or prolonged exposure, coveralls of barrier laminate may be required.

♣ SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. **Information on physical and chemical properties**

Appearance	White liquid (suspension in water)
Odour	Characteristic
Odour threshold	Not applicable
pH	4.0 - 6.0
Melting point/freezing point	Not determined
Initial boiling point and boiling range	Not determined

Flash point	Not determined, but expected to be > 95°C	
Evaporation rate	Not determined	
Flammability (solid/gas)	Not applicable (liquid)	
Upper/lower flammability or explosive limits	Not determined	
Vapour pressure	**Iprodione**	: 5 x 10^{-7} Pa at 25°C
Vapour density	Not determined	
Relative density	Not determined Density: 1.16	
Solubility(ies)	Solubility of **iprodione** at 20°C in:	
	Acetone	520 mg/l
	hexane	12.2 mg/l
	water	approx. 0.5 mg/l
Partition coefficient n-octanol/water	**Iprodione**	: log K_{ow} = 3.0 at 25°C and pH 5
Autoignition temperature	Not determined	
Decomposition temperature	Not determined	
Viscosity	Not determined	
Explosive properties.....	Not explosive	
Oxidising properties	Not oxidising	

9.2. **Other information**

Miscibility ..... The product is dispersible in water.

♣ SECTION 10: STABILITY AND REACTIVITY

10.1. **Reactivity** ..... To our knowledge, the product has no special reactivities.

10.2. **Chemical stability** ..... The product is stable during normal handling and storage at ambient temperatures.

10.3. **Possibility of hazardous reactions** None known.

10.4. **Conditions to avoid** ..... Heating of the product will evolve harmful and irritant vapours.

10.5. **Incompatible materials** ..... None known.

10.6. **Hazardous decomposition products** See subsection 5.2.

♣ SECTION 11: TOXICOLOGICAL INFORMATION

11.1. **Information on toxicological effects** * = Based on available data, the classification criteria are not met.

Product

Acute toxicity		The product is not considered as harmful by single exposures. * The acute toxicity is measured as:
Route(s) of entry	- ingestion	LD_{50}, oral, rat: > 2000 mg/kg
	- skin	LD_{50}, dermal, rat: > 2000 mg/kg
	- inhalation	LC_{50}, inhalation, rat: not available
Skin corrosion/irritation		Not irritating to skin. *
Serious eye damage/irritation		Not irritating to eyes. *

Respiratory or skin sensitisation ...	Not sensitising. *
Germ cell mutagenicity	The product contains no ingredients known to be mutagenic. *
Carcinogenicity	The active ingredient iprodione is a suspected carcinogen. Benign tumours in interstitial cells in testes in rats. Benign and malignant tumours in the liver and slight increase of ovarian luteomas in mice.
Reproductive toxicity	The product contains no ingredients known to have adverse effects on reproduction. *
STOT – single exposure	To our knowledge, no specific effects have been observed after single exposure. *
STOT – repeated exposure	The following has been measured on the active ingredient iprodione: Target organs: liver, reproductive organs and adrenals NOEL: 30.8 (male) - 35.8 (female) mg/kg bw/day in a 90-day rat study based on increase of liver weight. At higher doses: atrophy of prostate and uterus, vacuolation of adrenals and reduced number of corpora lutea. *
Aspiration hazard	The product does not present an aspiration hazard. *
Symptoms and effects, acute and delayed	In animal tests on iprodione, the main symptom was reduced activity.

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Toxicokinetics, metabolism and distribution		The substance is rapidly absorbed following oral administration. Elimination is fast and almost complete after 7 days. There is no indication of bioaccumulation.
Acute toxicity		The substance may be slightly harmful by ingestion, but is not considered harmful by skin contact or inhalation. * The acute toxicity is measured as:
Route(s) of entry	- ingestion	LD_{50}, oral, rat: 1500 - 3700 mg/kg
	- skin	LD_{50}, dermal, rat: > 2500 mg/kg *
	- inhalation	LC_{50}, inhalation, rat: > 5.16 mg/l/4 h *
Skin corrosion/irritation		Not irritating to skin. *
Serious eye damage/irritation		Slightly irritating to eyes. *
Respiratory or skin sensitisation ...		Not a skin sensitizer. *

♣ SECTION 12: ECOLOGICAL INFORMATION

12.1. **Toxicity** ..... The product is expected to be toxic to aquatic invertebrates and harmful to fish and aquatic plants. It is not considered as harmful to birds, soil micro- and macroorganisms, insects and mammals.

The ecotoxicity of the active ingredient **iprodione** is measured as:

- Fish Rainbow trout (*Oncorhynchus mykiss*) ..... 96-h LC_{50}: 4.1 mg/l

- Invertebrates	Daphnids (*Daphnia magna*)	48-h EC_{50}: 0.25 mg/l 21-day NOEC: 0.17 mg/l
- Algae	Green algae (*Scenedesmus subspicatus*)	72-h EC_{50}: > 0.5 mg/l
- Earthworms	*Eisenia foetida andrei*	14-day LC_{50}: > 1000 mg/kg soil
- Birds	Bobwhite quail (*Colinus virginianus*)	LD_{50}: > 2000 mg/kg
- Bees	Honey bees (*Apis mellifera*)	48-h LD_{50}, acute oral: > 25 µg/bee 48-h LD_{50}, contact: > 250 µg/bee

12.2. **Persistence and degradability** .... **Iprodione** is biodegradable, but does not meet the criteria for being readily biodegradable. It undergoes degradation in the environment and in waste water treatment plants. In aerobic soil and water it degrades with primary half-lives of a few weeks to a few months. Degradation products are not considered as harmful to soil dwelling or aquatic organisms.

The product contains minor amounts of not readily biodegradable components, which may not be degradable in waste water treatment plants.

12.3. **Bioaccumulative potential** ..... See section 9 for n-octanol/water partition coefficient.

Iprodione has a low bioaccumulation potential. Bioconcentration factor was determined to be 70 for whole fish (bluegill sunfish).

12.4. **Mobility in soil** ..... **Iprodione** is of low to medium mobility in soil. It is absorbed onto soil particles.

12.5. **Results of PBT and vPvB assessment** ..... None of the ingredients meets the criteria for being PBT or vPvB.

12.6. **Other adverse effects** ..... Other relevant hazardous effects in the environment are not known.

♣ SECTION 13: DISPOSAL CONSIDERATIONS

13.1. **Waste treatment methods** ..... Remaining quantities of the material and empty but unclean packaging should be regarded as hazardous waste.

Disposal of waste and packagings must always be in accordance with all applicable local regulations.

Disposal of product ..... According to the Waste Framework Directive (2008/98/EC), possibilities for reuse or reprocessing should first be considered. If this is not feasible, the material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing.

Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Disposal of packaging ..... It is recommended to consider possible ways of disposal in the following order:
1. Reuse or recycling should first be considered. Reuse is prohibited

except by the authorisation holder. If offered for recycling, containers must be emptied and triply rinsed (or equivalent). Do not discharge rinsing water to sewer systems.
2. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.
3. Delivery of the packaging to a licensed service for disposal of hazardous waste.
4. Disposal in a landfill or burning in open air should only occur as a last resort. For disposal in a landfill containers should be emptied completely, rinsed and punctured to make them unusable for other purposes. If burned, stay out of smoke.

♣ SECTION 14: TRANSPORT INFORMATION

ADR/RID/IMDG/IATA/ICAO classification

14.1.	**UN number**	3082
14.2.	**UN proper shipping name**	Environmentally hazardous substance, liquid, n.o.s. (iprodione)
14.3.	**Transport hazard class(es)**	9
14.4.	**Packing group**	III
14.5.	**Environmental hazards**	Marine pollutant
14.6.	**Special precautions for user**	Avoid any unnecessary contact with the product. Misuse can result in damage to health. Do not discharge to the environment.
14.7.	**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code**	The product is not transported in bulk by ship.

♣ SECTION 15: REGULATORY INFORMATION

15.1.	**Safety, health and environmental regulations/legislation specific for the substance or mixture**	Seveso category (Dir. 2012/18/EU): dangerous for the environment The employer shall assess any risks to the safety or health and any possible effect on the pregnancies or breastfeeding of workers and decide what measures should be taken (Dir. 92/85/EEC). The Young Worker Directive (94/33/EC) prohibits people under the age of 18 to work with this product.
15.2.	**Chemical safety assessment**	A chemical safety assessment is not required to be included for this product.

♣ SECTION 16: OTHER INFORMATION

Relevant changes in the safety data sheet	Numerous changes have been made to adapt the format of the safety data sheet to EU Reg. 453/2010, but these do not involve new information concerning hazardous properties.
List of abbreviations	AIHA American Industrial Hygiene Association

CAS	Chemical Abstracts Service
Dir.	Directive
DNEL	Derived No Effect Level
EC	European Community
EC_{50}	50% Effect Concentration
EINECS	European INventory of Existing Commercial Chemical Substances
GHS	Globally Harmonized classification and labelling System of chemicals, Fifth revised edition 2013
HSE	Health & Safety Executive, UK
IBC	International Bulk Chemical code
ISO	International Organisation for Standardization
IUPAC	International Union of Pure and Applied Chemistry
LC_{50}	50% Lethal Concentration
LD_{50}	50% Lethal Dose
MAK	Maximale Arbeitspaltz-Konzentration
MARPOL	Set of rules from the International Maritime Organisation (IMO) for prevention of sea pollution
NOEC	No Observed Effect Concentration
NOEL	No Observed Effect Level
n.o.s.	Not otherwise specified
PBT	Persistent, Bioaccumulative, Toxic
PNEC	Predicted No Effect Concentration
Reg.	Registration, or Regulation
SC	Suspension Concentrate
STOT	Specific Target Organ Toxicity
TWA	Time Weighted Average
vPvB	very Persistent, very Bioaccumulative
WEEL	Workplace Environmental Exposure Level
WEL	Workplace Exposure Limit
WHO	World Health Organisation

References ..... Data measured on the product are unpublished company data. Data on ingredients are available from published literature and can be found several places.

Method for classification ..... Calculation rules

Used hazard statements .....

H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
EUH401	To avoid risks to human health and the environment, comply with the instructions of use.

Advice on training ..... This material should only be used by persons who are made aware of its hazardous properties and have been instructed in the required safety precautions.

The information provided in this safety data sheet is believed to be accurate and reliable, but uses of the product vary and situations unforeseen by FMC Corporation may exist. The user has to check the validity of the information under local circumstances.

Prepared by: FMC Corporation / Cheminova A/S / GHB