

# SAFETY DATA SHEET

Issue No: 2.2	Revision date: 14 April 2023 First print date: 15 September 2011
---------------	---

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name:	<b>ImaCulate 300 EC</b>
Other names;	Imazalil 300 g/l
Recommended Use:	Agricultural Fungicide (systemic)
Supplier:	ICA International Chemicals (Pty) Ltd
Address:	28 Planken Street Plankenbrug Industrial STELLENBOSCH · 7600 · SOUTH AFRICA
Telephone No:	+27-21 886 9812
Fax No:	+27-21 886 8209
Emergency Tel No:	Griffon Poison Information Centre: +27-82 446 8946 Human Poison Helpline: +27-861 555 777

## 2. HAZARD IDENTIFICATION

GHS Classification of product	Flammable liquids – Category 3 Acute Toxicity Oral – Category 4 Skin Corrosion/Irritation – Category 2 Serious Eye Damage/Irritation – Category 1 Carcinogenicity – Category 2 Aquatic Chronic Toxicity – Category 1
-------------------------------	---

Label Elements  
Classification and Labelling of Chemicals (GHS)  
Rev 9, 2021; Regulation EC No. 1272/2008 [EU-GHS/CLP]



Signal word

**DANGER**

Hazard Statements

H226 – Flammable liquid and vapour  
H302 – Harmful if swallowed  
H305 – May be harmful if swallowed and enters airways  
H315 – Causes skin irritation  
H318 – Causes serious eye damage  
H351 – Suspected of causing cancer  
H410 – Very toxic to aquatic life with long lasting effects

General Precautionary Statements

P101: If medical advice is needed, have product container or label at hand.  
P102: Keep out of reach of children.

Prevention Precautionary Statements

P103: Read carefully and follow all instructions.  
P203: Obtain, read, and follow all safety instructions before use.  
P210: Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof [electrical, ventilating, lighting] equipment.  
P242: Use non-sparking tools.  
P243: Take action to prevent static discharges.  
P261: Avoid breathing mist and spray.

Response Precautionary Statements	<p>P264 + P265: Wash hands and exposed skin thoroughly after handling. Do not touch eyes.</p> <p>P270: Do not eat, drink, or smoke when using this product.</p> <p>P273: Avoid release to the environment.</p> <p>P280: Wear protective gloves, protective clothing, eye and face protection.</p> <p>P301 + P330 + P316: IF SWALLOWED: Rinse mouth and get emergency medical help immediately.</p> <p>P331: Do NOT induce vomiting.</p> <p>P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with soap and water or take a shower.</p> <p>P305 + P354 + P338 + P317: IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing and get medical help.</p> <p>P318: If exposed or concerned, get medical advice.</p> <p>P321: For specific treatment, see first aid measures in section 4.</p> <p>P332 + P317: If skin irritation occurs: Get medical help.</p> <p>P362 + P364: Take off contaminated clothing and wash it before reuse.</p> <p>P370 + P378: In case of fire: Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide CO<sub>2</sub> to extinguish the fire.</p> <p>P391: Collect spillage.</p>
Storage Precautionary Statements	<p>P403 + P235: Store in a well-ventilated place. Keep cool.</p> <p>P405: Store locked up.</p>
Disposal Precautionary Statements	<p>P501: Dispose of contents and container in accordance with national regulations.</p>

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT(S)	CAS NO:	CONCENTRATION % (w/v)	CLASSIFICATION EC 1272/2008
Imazalil Free Base	35554-44-0	30	Acute Oral Toxicity Category 3, H301; Acute Inhalation Toxicity Category 4, H332; Eye Damage Category 1, H318; Carcinogen Category 2, H351; Aquatic Chronic Category 1, H410
Caproaldehyde	66-25-1	30 – 60	Flammable liquid Category 3, H226; Skin Irritation Category 2, H315; Eye Irritation Category 2, H319
Propylene carbonate	108-32-7	< 10	Eye Irritation Category 2, H319
N-octyl-2-pyrrolidone	2687-94-7	< 10	Skin Corrosion Category 1B, H314; Aquatic Chronic Category 2, H411
Solvent Naphtha (petroleum)	64742-94-5	< 10	Aspiration Hazard Category 1, H304

There are no additional ingredients present which, within the current knowledge of the provider of this SDS, and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section. See section 16 for legend of additional H-phrases not in section 2.

### 4. FIRST AID MEASURES

**Show this SAFETY DATA SHEET to a doctor.**

#### INHALATION:

- Remove the victim from immediate source of exposure. Move victim to fresh air, if it can be done safely, and keep comfortable.
- If victim's breathing has stopped, perform artificial respiration.
- DO NOT perform mouth-to-mouth resuscitation if victim ingested or inhaled the substance; wash face and mouth before giving artificial respiration. Use a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Administer oxygen if victim's breathing is difficult or irregular.
- Get medical help.

#### SKIN:

- Remove and isolate contaminated clothing, shoes, and leather goods immediately and take a shower.

- Rinse affected areas (skin) immediately with non-abrasive soap or mild detergent and large amounts of running water. Wash contaminated clothing before reuse.
  - Get medical help if irritation develops and persists.
- EYES:**
- Rinse eyes IMMEDIATELY with clean running water for at least 15 minutes, while holding eyelids apart.
  - Remove contact lenses after 5 minutes if present and easy to do.
  - Continue rinsing while holding eyelids apart.
  - Seek medical help if irritation continues.
- INGESTION:**
- If swallowed, DO NOT induce vomiting, unless instructed to do so by poison control center or doctor.
  - Rinse mouth and have person sip a glass of water if able to swallow
  - Never give anything by mouth to an unconscious person.
  - If vomiting does occur, keep on giving fluids. Get emergency medical help immediately.
- NOTE TO PHYSICIAN:**
- There is no specific antidote. All treatments should be based on observed signs and symptoms of distress in the patient.
- POTENTIAL HEALTH EFFECTS, ACUTE AND DELAYED:**
- Effects of exposure (inhalation, ingestion, or skin contact) to substance may be delayed. Suspected of causing cancer.

## 5. FIRE FIGHTING MEASURES

- SUITABLE EXTINGUISHING MEDIA:** **Small fires:** Dry chemical powder, carbon dioxide (CO<sub>2</sub>), water spray or alcohol-resistant foam.  
**Large fires:** Dry-chemical, carbon dioxide (CO<sub>2</sub>), water spray, or alcohol-resistant foam
- FIRE INVOLVING TANKS:** Cool containers with flooding quantities of water until well after fire is out. Always stay away from tanks engulfed in fire.
- UNSUITABLE EXTINGUISHING MEDIA:** DO NOT use high volume water jet, due to contamination risk.
- SPECIFIC EXTINGUISHING METHODS:** Fight fire from maximum distance. For massive fire, use unmanned hose holder or monitor nozzles. Collect contaminated extinguishing water separately; do not allow contaminated water to reach the sewage or effluent systems.
- SPECIFIC HAZARDS ARISING FROM COMBUSTION PRODUCTS:** In case of fire, the formation of irritating, corrosive and/or toxic gases can be expected.
- PRECAUTIONS FOR FIRE FIGHTERS:** Fire fighters should wear full protective gear including self-contained breathing apparatus (SCBA). Fight fire from safe distance. Contact with the fumes and vapours should be avoided by staying upwind. Clean all clothing before reuse. Severely contaminated clothing cannot be adequately decontaminated and must be disposed as a hazardous waste. Shower with soap and water after contact with chemical product.
- FURTHER INFORMATION:**
- If possible, safely move undamaged intact containers away from the area around the fire.
  - Keep containers cool by spraying with water if exposed to fire.
  - Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.
  - In case of fire and/or explosion do not breathe fumes.

## 6. ACCIDENTAL RELEASE MEASURES

### SPILL OR LEAK:

- PERSONAL PRECAUTIONS:** Avoid contact with skin and eyes. Do not touch or walk through spilled material. Do not inhale spray or fumes.
- PROTECTIVE EQUIPMENT:** Wear personal protective clothing and equipment (see section 8).
- EMERGENCY PROCEDURES:** Keep people and animals away. Eliminate all ignition sources (no smoking, flares, sparks, or flames) from immediate area. All equipment used when handling the product must be grounded.  
Use water spray to reduce vapours or divert vapour cloud drift.
- ENVIRONMENTAL PRECAUTIONS:** PREVENT spilled material from entering waterway and sewer systems, basements, and confined areas. If the product contaminates rivers and lakes or waterways immediately inform respective authorities.

**METHODS AND MATERIALS FOR CONTAINMENT:**

Collect spills by scoop or vacuum. Use approved industrial vacuum cleaner for removal and place in clearly marked waste containers.

**METHODS AND MATERIALS FOR CLEANING UP:**

Contain spillage, and then collect and place in container for disposal according to local / national regulations (see section 13). Use clean, non-sparking tools to collect absorbed material.

**SECONDARY DISASTER PREVENTION MEASURES:**

NA

**7. HANDLING AND STORAGE**

**7.1: PRECAUTIONS FOR SAFE HANDLING:**

- Suitable Technical Measures
- Suitable Precautions
- Prevention of contact

- Always store fungicides in their original containers, which include the label listing ingredients, directions for use, and first aid steps in case of accidental poisoning.
- Never transfer to soft drink bottles or other food containers. Children or others may mistake them for something to eat or drink.
- Wear suitable protective clothing which include chemical-resistant overalls, footwear, socks, dust mask, eye shields and gloves.
- Wash hands before eating, drinking, chewing gum, smoking, or using the toilet. Wash hands, arms, and face after application. Wash gloves and contaminated protective clothing daily before reuse.

**7.2: CONDITIONS FOR SAFE STORAGE:**

- Suitable Technical Measures
- Separation measures from incompatible substances and mixtures

- Keep out of reach of unauthorized persons, children, and animals. Always store fungicides in their original containers, closed with original cap and the original label, in a cool, dry, and well-ventilated area out of direct sunlight.
- Segregate from foods and animal feeds.
- DO NOT reuse the container for any other purpose.

**8. EXPOSURE CONTROLS AND PERSONAL PROTECTION**

**ADI – Acceptable Daily Intake**

**Imazalil** = 0,025 mg kg<sup>-1</sup> bw day<sup>-1</sup>

**ARfD – Acute Reference Dose**

**Imazalil** = 0,05 mg kg<sup>-1</sup> bw day<sup>-1</sup>

**AOEL –Accepted Operator Exposure Level**

**Imazalil** = 0,05 mg kg<sup>-1</sup> bw day<sup>-1</sup>

No unacceptable risk for operators or other workers identified.

**NATIONAL EXPOSURE STANDARDS:**

None allocated

**BIOLOGICAL LIMIT VALUES:**

None allocated

**ENGINEERING CONTROLS:**

Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated. If airborne dust are generated use local exhaust ventilation controls. Facilities should be equipped with an eyewash station and a safety shower. Where necessary, seek additional occupational hygiene advice.

**PERSONAL PROTECTIVE EQUIPMENT:**

**Respiratory Protection:** Where exposure through inhalation may occur when handling and/or when preparing the application mixture, wear a face mask. If the product is used in confined spaces a respirator suitable for protection from dusts and mists of fungicides is adequate.

**Hand Protection:** Wear chemical-resistant gloves made of any waterproof material such as nitrile rubber. Glove thickness: 0.5 mm

**Eye Protection:** The use of safety goggles (full-face shield) is recommended.

**Skin and Body Protection:** Wear suitable protective clothing which include chemical-resistant overalls, footwear, socks, dust mask, eye shields and gloves. Remove and wash contaminated protective clothing daily.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**PHYSICAL STATE:**

Liquid

**COLOUR:**

Light chestnut

**ODOUR:**

Strong chemical

**MELTING POINT °C (a.i):**

51.5 °C

**BOILING POINT (a.i):**

Decompose before boiling

**DECOMPOSITION TEMPERATURE (a.i):**

260 °C

**FLAMMABILITY:**

**Flammable liquid – Category 3**

**EXPLOSIVE LIMITS:**

Not expected

FLASH POINT:	45 °C
AUTO-IGNITION TEMPERATURE:	Not available
PH (1% IN WATER):	5.0 – 8.0
KINEMATIC VISCOSITY:	Not available
$\text{Kinematic viscosity} = \frac{\text{Dynamic viscosity (mPa/s)}}{\text{Density (g/cm}^3\text{)}}$	
VISCOSITY:	Not available
DENSITY / RELATIVE DENSITY:	~1,08 g/mℓ
SOLUBILITY - WATER (a.i):	184 mg/ℓ
N-OCTANOL / WATER PARTITION COEFFICIENT (a.i):	Log P = 2.56
VAPOUR PRESSURE (a.i):	0.158 mPa
RELATIVE VAPOUR DENSITY:	Not available

## 10. STABILITY AND REACTIVITY

REACTIVITY:	Stable under normal conditions, will dissolve in fire-fighting water, forming acidic solution.
CHEMICAL STABILITY:	Stable under normal use and storage conditions for at least 2 years.
HAZARDOUS REACTION:	Hazardous polymerization is not expected to occur.
CONDITIONS TO AVOID: (e.g. – heat, pressure, static discharge, shock, or vibration)	Avoid storage in moist or hot conditions, near to heat or ignition sources. Keep away from food, drink and open bodies of water.
INCOMPATIBLE MATERIALS:	Strong acids, strong oxidizers, strong bases, reducing agents, oxidizing agents.
HAZARDOUS DECOMPOSITION PRODUCTS:	When heated to decomposition, irritant or dangerous fumes/vapours may be emitted. See section 5.

## 11. TOXICOLOGICAL INFORMATION

	ATE ACUTE TOXICITY DATA	
ORAL:	LD <sub>50</sub> (rat) = 500 mg/kg bw	Category 4
DERMAL:	LD <sub>50</sub> (rat) > 6400 mg/kg bw	Not Classified
INHALATION:	LC <sub>50</sub> (4h) rat > 6.13 mg/ℓ	Not Classified
SKIN IRRITATION / CORROSION:	≥ 1% but < 5%	Category 2
SERIOUS EYE IRRITATION / DAMAGE:	≥ 3%	Category 1
RESPIRATORY OR SKIN SENSITIZATION:		Not Classified
GERM CELL MUTAGENICITY:		Not Classified
CARCINOGENICITY:	≥ 1.0%	Category 2
REPRODUCTIVE TOXICITY:		Not Classified
SPECIFIC TARGET ORGAN TOXICITY – SINGLE EXPOSURE:		Not Classified
SPECIFIC TARGET ORGAN TOXICITY – REPEATED EXPOSURE:		Not Classified
ASPIRATION HAZARD:		Category 2

## 12. ECOLOGICAL INFORMATION

ECOTOXICITY:		
IMAZALIL	Birds: LD <sub>50</sub> (oral)	<i>Coturnix japonica</i> (Japanese quail) Acute LD <sub>50</sub> = 510 mg/kg bw/day <i>Anas platyrhynchos</i> (Mallard duck) LC <sub>50</sub> /LD <sub>50</sub> > 5620 mg/kg bw/day diet Chronic NOEC = 250 mg/kg bw/day
	Fish: LC <sub>50</sub>	<i>Oncorhynchus mykiss</i> (Rainbow trout) Acute (96h) LC <sub>50</sub> = 1.48 mg a.i./ℓ NOEC = 0.043 mg a.i./ℓ (21-day)
	Aquatic invertebrates - <i>Daphnia</i>	<i>Daphnia magna</i> (Water flea) Acute (48h) EC <sub>50</sub> = 3.5 mg a.i./ℓ
	Algae - EC <sub>50</sub>	<i>Raphidocelis subcapitata</i> Acute (72h) EC <sub>50</sub> = 0.87 mg a.i./ℓ

Bees	<i>Apis mellifera</i> Acute contact 48-hour LD <sub>50</sub> = 39 (µg.bee <sup>-1</sup> ) Acute oral 48-hour LD <sub>50</sub> = 35.1 (µg.bee <sup>-1</sup> )
Earthworms: LC <sub>50</sub>	<i>Eisenia foetida</i> Acute (14-day) LC <sub>50</sub> = 271 mg a.i./kg d.w. soil

**AQUATIC TOXICITY:**
**Summation Method**

Aquatic Chronic – Category 1

**PERSISTENCE, DEGRADABILITY AND MOBILITY:**
**Imazalil** is moderately to non-persistent in the soil and non-mobile.

 DT<sub>50</sub> = 4 – 5 days

 K<sub>oc</sub> = 2080 – 8150 mg/ℓ (non-mobile)

BCF = 48.7 – 63.8 ℓ/kg – Low potential

**BIO-ACCUMULATIVE POTENTIAL:**
**SOIL MICRO-ORGANISMS:**

Carbon transformation No significant adverse/long-term effect


Nitrogen transformation No significant adverse/long-term effect

### 13. DISPOSAL CONSIDERATIONS

On site disposal of the concentrated product is not acceptable. Ideally, the product should be used for its intended purpose. If there is a need to dispose of the product, approach local authorities.

**TRIPLE RINSE THE EMPTY CONTAINER AS FOLLOWS:** Containers must be completely emptied before being disposed of. Invert the empty container over the spray or mixing tank and drain for at least 30 seconds until the flow has slowed down to a drip. Thereafter rinse the empty container three times in succession with one quarter of the container volume fresh water and decant the rinsate into the spray or mixing tank. Puncture the triple rinsed container and dispose of via an approved collector or recycler ([www.croplife.co.za](http://www.croplife.co.za)). Do not bury, burn, or donate the container to any other parties that may use it as a container for food or beverages.

### 14. TRANSPORT INFORMATION

<b>UN NUMBER:</b>	1993
<b>UN PROPER SHIPPING NAME:</b>	FLAMMABLE LIQUID (contains Caproaldehyde)
<b>TRANSPORT HAZARD CLASS(ES):</b>	Class 3 (Subsidiary hazard 9)
<b>PACKING GROUP:</b>	III (low danger)
<b>TRANSPORT PICTOGRAMS:</b>	
<b>ENVIRONMENTAL HAZARD:</b>	Marine Pollutant: Yes – Category 1
<b>TRANSPORT IN BULK:</b>	Not applicable, not to be transported in bulk.
<b>SPECIAL PRECAUTIONS FOR USER:</b>	Not applicable

### 15. REGULATORY INFORMATION

Conforms to South Africa Regulation for Hazardous Chemical Agents, 2021.

South African Registration number L9080, Act 36 of 1947.

SDS valid for five years from date of issue.

### 16. OTHER INFORMATION

**Legend:** Full text of H-Statements referred to under sections 3:

H301 – Toxic if swallowed

H304 – May be fatal if swallowed and enters airways

H314 – Causes severe skin burns and eye damage

H319 – Causes serious eye irritation

H332 – Harmful if inhaled

H411 – Toxic to aquatic life with long lasting effects

**Key literature references and sources of data:** Occupational Health and Safety Act 1993. Regulation for Hazardous Chemical Agents, 2021. Globally Harmonized System of Classification and Labelling of Chemicals (GHS) Rev 9, 2021.

UN Model Regulations Rev. 22 (2021). EU REGULATION (EC) No 1272/2008.



This Safety Data Sheet (SDS) summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this SDS and consider the information in the context of how to prevent accidents in the normal workplace including in conjunction with other products.

The information was obtained from sources which we believe are reliable. However, the information is provided in good faith. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and for these reasons we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used for this product only.

First Edition Date: 15 September 2011

Issue: 2.2 – 14 April 2023 (Section 14: Transport Information Updated).

END of SDS