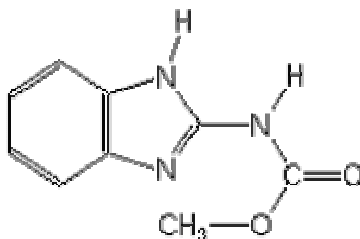


## **MATERIAL SAFETY DATA SHEET OF CARBENDAZIM 50% WP**

### **1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION:**

Common Name	<b>Carbendazim 50% WP</b>
Chemical Name	methyl 1 <i>H</i> -benzimidazol-2-ylcarbamate.
Intended Use	Fungicide
Pesticide Family & Common name	carbendazim (BSI, E-ISO), carbendasime (F-ISO), carbendazol(JMAF), BMC (USSR) benzimidazole fungicides
Manufactured By	JAI SHREE RASAYAN UDYOG LTD. M-4, Aradhana Bhawan, Commercial Complex, Azadpur, Delhi-110 033 Telephone No. : 91-11- 45750100-40 Telefax : 91- 11- 45750140
Empirical Formula	C <sub>9</sub> H <sub>9</sub> N <sub>3</sub> O <sub>2</sub>

Structural formula:



CAS NO.	: 10605-21-7
Molecular weight	:191.2

### **2. PHYSICAL & CHEMICAL PROPERTIES**

Physical state	:Powder
Colour	: Colorless
Acidity (As H <sub>2</sub> SO <sub>4</sub> )	:.0.05 % max.

Solubility	In water at 20c° 8 mg/litre water (at pH7) 68 mg/litre dichloromethane 100 mg/litre chloroform 300 mg/litre acetone 5 g/litre dimethylformamide 300 g/litre ethanol
Stability	: Stable for two years in normal conditions
Compatibility	: Can compatible with many common pesticides;
Odour	: Specific Odour
Acidity / Alkalinity or pH Valu	: N/A.
Boiling point / range	: N/A
Melting point / range	: >98 °C
Flash poit	: N/A
Flammability	: Not flammable.
Oxidising properties	: N/A
Vapour pressure	: N/A
Bulk Density	: 0.64

### 3. COMPOSITION / INGREDIENTS

<b>Composition</b>	<b>% w/w</b>	<b>CAS no.</b>
Carbendazim Technical (Min. 98%)	: 51.00% w/w	79983-71-4
Surface Active Agents (alkyl benzene sulfonate)	: 2.00% w/w	68412-54-4
Dispersing Agents (salt of poly alkyl naphthyl sulfonate)	: 2.00% w/w	26264-06-2
Sticking Agents (Glue / CMC)	: 2.00% w/w	9000-11-7
Carrier, (China Clay)	: 43.00% w/w	1332-58-7
Total	: <u>100.000% w/w</u>	

### 4. HAZARDS INDENTIFICATION

Toxicity Class	: Non Hazardous as per NOHSC
Symptoms of poisoning	: Irritant

Skin	: Minimally toxic and not irritating.
Eyes	: Non- eye irritation
Inhalation	: Not a likely route of exposure when handling the concentrate. Care should be taken to avoid inhalation of excessive amount of material during field spraying May be Irritating to the respiratory system
Ingestion	: Amount swallowed incidental to normal handling procedures and use are not expected to cause injury
Other information	: Non Toxic in general

## 5. FIRST AID

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.
Eyes Contact	: Immediately flush the eyes with gently flowing, lukewarm water or saline solution for 20 minutes, occasionally lifting the upper and lower lids. Obtain medical attention if necessary.
Inhalation	Remove source of contamination or move victim to fresh air. Keep victim warm and at rest. Treat symptomatically and Supportively. Obtain medical advice if necessary.
Ingestion	:Wash mouth out with water. If vomiting occurs, give more water to drink to assist dilution.
Other information	Treat symptomatically and supportively as and when required.
Antidote	: No specific antidote is known, Treat symptomatically.

## 6. FIRE AND EXPLOSION DATA

Flash point	: Non- combustible.
Extinguishing media	: Preferred extinguishing media are Carbon Dioxide,dry chemical,Foam,water Fog.
Unsuitable extinguishing	
Special exposure hazards	: Fire may involve dehydrated compounds, which may emit oxides of carbon, nitrogen and possibly hydrogen chloride

## 7. ACCIDENTAL RELEASE MEASURES

<b>Personal Precautions</b> :	: Avoid Contact with skin and eyes .Do not breathe in fumes
<b>Environmental Precautions</b>	: Do not allow entering drains or watercourses. When the product contaminates public waters, inform appropriate authorities immediately in accordance with local regulations
<b>Occupational spill</b>	: For <b>small</b> dry spills, sweep up with damp earth or sand or other suitable absorbents, such as sawdust, taking care not to raise a dust cloud. Place the material into a clean, dry container and cover for subsequent disposal. In situations where product comes in contact with water, contain contaminated water for later disposal. Do not flush spilled material into drains. For <b>large spills</b> contact the manufacturer. Contain liquid far ahead of spill. Contain spillage and contaminated water and soil for subsequent disposal. Do not flush spilled material into drains. Keep spectators away and upwind.

## 8. HANDLING AND STORAGE

<b>Handling</b>	: Keep product in original tightly closed container. Remove sources of naked flame or sparks. Avoid contact with eyes, prolonged contact with skin, and inhalation of dust and vapour.
-----------------	--

Use with adequate ventilation. Wash hands before eating, drinking, chewing gum, smoking, or using the toilet.

Remove clothing immediately if the product 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 bagged material only on pallets **no more than 3 metre high**. Provide access aisles for each 2 rows. Loose bags could not be stacked more than 2x2x2 meters. **Dense packaging of unvented stacks of bags or boxes may lead to product decomposition posing a fire hazard.** Decomposition produces a foul odor. Check for hot containers and immediately remove to open areas for disposal. Keep out of reach of unauthorised persons, children and animals. Store in its original labeled container in shaded, well-ventilated area, away from heat, sparks and other sources of ignition. Not to be stored next to foodstuffs and water supplies. Local regulations should be complied with.

## **9. EXPOSURE CONTROLS/ PERSONAL PROTECTION.**

**Occupational exposure limits** : No occupational limits are established .

**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. Only spark –resistant equipment should be used. Comply with occupational safety, environmental, fire and other applicable regulations.

### **PERSONAL PROTECTIVE EQUIPMENT:**

**Respirator** : An approved full-face respirator suitable for protection from dusts and mists of pesticides is required. Limitations of respirator use specified by the approving agency and the manufacturer must be observed. Comply with occupational safety, environmental, fire, and other applicable regulations.

### **Clothing**

: Employee must wear appropriate protective (impervious) clothing, boots and equipment to prevent repeated or prolonged skin contact with this substance. Do not wear leather clothing.

- Gloves** : Employee must wear appropriate chemical resistant 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.

## 10. STABILITY AND REACTIVITY

- Stability** : Stable under normal, dry storage conditions. Slowly decomposed by heat and moisture
- Conditions to avoid** : No special precautions other than good housekeeping of chemicals.
- Incompatibility** : Incompatible with oxidation materials and acids. The Product is compatible with many other pesticides 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** : Thermal decomposition products may emit oxides of carbon and nitrogen. And possibly hydrogen chloride

## 11. TOXICOLOGICAL INFORMATION (a.i.)

- LD<sub>50</sub> Acute Oral >15000 mg/kg in rats (males)  
>15000 mg/kg in rats (female).
- LD<sub>50</sub> Acute Dermal > 2000 mg/kg
- LC<sub>50</sub> Acute Inhalation >5.5 mg/L in rats (4 hour).
- Skin Irritation Non irritation to skin
- Eye Irritation Non irritation .
- Dermal sensitisation No sensitizing.
- Mutagenicity Results taken from animal studies suggest that the product is not mугenic.

## 12. ECOLOGICAL INFORMATION (a.i.)

- Bees Non Toxic to bees

Birds	Non Toxic to Birds Acute Oral: LD <sub>50</sub> mallard duck >8000 mg/kg
The Aquatic Organisms	Fish Toxicity: LC <sub>50</sub> (96h) in trout ( <i>Onchorhynchus mykiss</i> ) 0.36 mg/l LC <sub>50</sub> (96h) in sheepshead minnow 5.4 mg/l  Daphnia toxicity: LC <sub>50</sub> (48h) water flea ( <i>Daphnia magna</i> ) 2.9 mg/l

### 13. TRANSPORT INFORMATION

UN No.	Not applicable
IMCO Class	Not applicable
IMDG PG	Not applicable
Packing Group	Not applicable
Proper Shipping Name	Carbendazim non-hazardous good.
Environmental risk	Not applicable Non Dangerous Good

### 14. REGULATORY INFORMATION

Hazard Symbol	Non- Hazardous as per NOHSC
Risk phrases	Not Applicable
Safety Phrases	Not specified

### 15. DISPOSAL PROCEDURES

<b>Pesticide disposal</b>	Contaminated absorbents, used containers, surplus product, etc., should be burnt at > 1000oC in an incinerator, preferably designed for pesticide disposal, or buried in an approved landfill. Comply with local legislation applying to waste disposal.
<b>Container disposal</b>	<ol style="list-style-type: none"> <li>1. Emptied containers retain product residues. Observe all labelled safeguards until container is cleaned, reconditioned, or destroyed. Combustible containers should be disposed of in pesticide incinerators or buried in an approved landfill.</li> <li>2. Noncombustible containers must first be triple-rinsed with water.</li> <li>3. Containers that are not to be reused and should be punctured and transported to a scrap metal facility for recycling or disposal.</li> </ol>

## **16. OTHER INFORMATION**

It is excellent fungicide composed of Carbendazim 50% WP in wettable powder form effectively used to control range of fungi in variety of crops.

The information contained in this safety data sheet is given in good faith. It is accurate to our best of knowledge and belief and represents the most upto date information. The information given in this data sheet does not constitute or replace the users own assessment of work place risk as required by other health and safety legislation. Jai Shree Rasayan Udyog Ltd. will not be liable for any claims or damages arising out of use of this information.

For JAI SHREE RASAYAN UDYOG LTD.

AUTHORISED SIGNATORYs