



# NATIONAL FUMIGANTS

## MATERIAL SAFETY DATA SHEET

### CURAGEL

#### 1. PRODUCT IDENTIFICATION:

**Name:** National Fumigants (Pty) Ltd  
**Address:** No. 18 Aschenberg Street  
Chamdor  
Krugersdorp  
**Tel. No.:** (011) 769 1300  
**Fax No.:** (011) 762 5712  
**Emergency Tel. No.:** 083 449 0350  
**Trade name:** Curagel

#### 2. COMPOSITION / INFORMATION ON INGREDIENTS:

**Chemical Family:** Phosphine  
**Chemical Name:** ZINC PHOSPHIDE  
**Molecular Formula:**  $P_2Zn_3$   
**Hazchem code:** 4WE  
**EPG:** 4B3  
**UN No.:** 1714  
**C.A.S. No.:** 1314-84-7  
**Product description:** Only to be used by Co-operatives, Mills, Boona fide farmers and Pest Control Operators. Rodenticide contact gel ready for use, for the control of Norwegian and roof rats and house mice.  
**Hazardous components:** Zinc phosphide 3,8 – 4,2 %

#### 3. HAZARD IDENTIFICATION:

##### **EFFECTS OVEREXPOSURE:**

##### **Acute hazards /symptoms:**

**Immediate treatment by a physician is imperative.**

**Inhalation:** Cough, diarrhoea, headache, fatigue, nausea, vomiting.

**Skin:** Can cause irritation. Redness.

**Eyes:** Can cause irritation. Redness.

**Ingestion:** Odour of garlic in the breath, burning pain in the abdomen, intense thirst, vomiting, haemorrhage, delirium, convulsions and coma. There may be a remission of symptoms for a few days, followed by jaundice, peripheral circulatory collapse, prostration, coma and death.

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#### **4. FIRST-AID MEASURES:**

IN ALL CASES CONSULT A DOCTOR!!

**Inhalation:** Remove patient to well ventilated area and keep him quiet and reassured. Make sure patient can breathe freely. If breathing has stopped, give artificial respiration; do not apply direct mouth – to – mouth respiration. Do not give anything by mouth to an unconscious person.

**Skin:** Brush or shake material off clothing and shoes in a well-ventilated area. Remove contaminated clothing. Aerate clothing prior to laundering. Do not leave contaminated clothing in occupied or confined spaces, such as automobiles, rooms, etc. Wash contaminated skin thoroughly with soap and water.

**Eyes:** Flush eyes with plenty of water for 15 minutes, lifting upper and lower lids occasionally. Get medical attention.

**Ingestion:** Call a physician. Remove patient to well ventilated area and keep him quiet and reassured. Make sure patient can breathe freely. If breathing has stopped, give artificial respiration; do not apply direct mouth – to – mouth respiration. Do not give anything by mouth, or induce vomiting, to an unconscious person.

**Note to physician:** Flush the stomach thoroughly with 0.2 % Potassium Permanganate solution. Administer 200 ml mineral oil. Do not administer animal or vegetable fat or oils. Further symptoms should be treated symptomatically. Watch for the development of pulmonary oedema.

#### **5. FIRE-FIGHTING MEASURES**

**Flash point:** Not detectable

**Flammability:** Phosphine concentrations above 3% can cause autoignition. Diphosphine impurities in the phosphine given off can enhance flammability.

**Acute hazards:** Not combustible, but can form flammable gas on contact with water or damp air. Risk of fire and explosion on contact with acid(s) and water.

**Prevention:** No contact with acid(s), water or oxidants.

**Fire extinguishing media:** Powder. Dry sand. NO water. NO carbon dioxide or halons.

**Fire control precautions:** Wear self-contained, positive pressure breathing apparatus and full fire fighting clothing.

Keep unnecessary people away. In case of fire: keep drums, etc., cool by spraying with water, but NO direct contact with water. Do not contaminate personnel or equipment, or handle broken packages or containers without protective clothing.

Decontaminate emergency personnel with soap and water before leaving the fire area.

Avoid breathing dusts, vapours and fumes from burning materials. Inform Local Authorities.

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## **6. ACCIDENTAL RELEASE MEASURES:**

### **Personal protection:**

Wear protective clothing depending on the concentration of phosphine in the atmosphere. See Section 8.

### **Small spill or leaks:**

Return all intact aluminium flasks to the cardboard carton. If flasks have been punctured or are leaking, they may be temporarily repaired with aluminium tape or laced in a sound sealed metal container and suitably marked. Keep the product in a well –ventilated area suitable for pesticide storage for inspection. If the spill is only a few minutes old, collect spilt material and return to sealable containers.

**NB:** These containers may flush upon opening at some later stage. If spill is to a water body, notify Local Authorities immediately.

### **Large spills:**

Ensure the area is well –ventilated. Phosphine disperses rapidly in air. If necessary use mechanical ventilation. Gather the spillage and place it in a small bucket of about 5 litres. Do not add more than one flask of material to the bucket. If on site where deactivation is not possible, the bucket should be carried in an open vehicle to a suitable area. Wet deactivation can then be carried out as follows: Prepare a solution of 4 cups of detergent to 150 litres of water in suitable drum. Wearing appropriate respiratory protection, slowly pour the contents of the bucket in the solution. Allow the contents to react for 24 hours. Disposal in this way does not cause harm to the environment. Do not pour more than 50 kg of material into the 150-liter drum. Never place spilled material in a closed container, such as a dumpster, sealed drum, plastic bag, etc., since flammable concentrations of phosphine are likely to develop.

### **Waste disposal:**

Handle with care, and dispose in a safe manner according to Local regulations, regarding Waste Management. Empty containers with some product residues, should NOT BE RE –USED! Render container unusable by crushing and / puncturing, and dispose in a safe manner.

### **Precautions –Handling /Storage:**

Do not inhale dust /gases. Wash contaminated clothing after the day's work. Do not eat, drink or smoke while applying or before washing hands and face. Do not contaminate water, food, or feed by storage or disposal. Store in a secure, dry, well –ventilated separate room, building or covered area. Destroy non –returnable containers by perforation and do not re –use for any other purpose.

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## 7. HANDLING AND STORAGE:

**Precautions –Handling /Storage:** Do not remove labels from returnable containers. Keep away from sources of ignition and protect from exposure to fire and heat. Separate from strong oxidizers, food and foodstuffs.

**Suitable containers:** Plastic containers.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION:

During use, the following good industrial hygiene practice is recommended:

**Occupational Exposure Limits:** TLV 0.3 ppm in air.

**Respiratory protection:** If the TLV is exceeded an approved full-face gas mask with a hydrogen phosphide canister may be used up to levels of 15 ppm. If exposure is to a higher level for any length of time, then self-contained breathing apparatus must be used. Ventilate by mechanical Means (general or local exhaust) to maintain exposure below the TLV.

**Skin:** Wear synthetic rubber or PVC protective gloves. Wear protective gloves. Wear a long sleeve or shirt and a full –length pants and overall. Shower at the end of the workday and change clothing. Launder clothing before re –use.

**Eyes:** Wear dust goggles with side shields, in combination with breathing protection.

**Ingestion:** Do not eat, drink or smoke during work. Wash hands before eating or smoking.

## 9. PHYSICAL AND CHEMICAL PROPERTIES:

**Appearance:** Grey to Black gel.

**Melting Point:** Greater than 420 ° C (when heated in the absence of oxygen) (technical)

**Solubility:** Practically insoluble in water (decomposes slowly)  
Slightly soluble in carbon disulfide and benzene. Practically insoluble in alcohols.  
(For technical)

**Specific gravity:** 4.55 (For technical)

**Molecular weight:** 258.1 (For technical)

## 10. STABILITY AND REACTIVITY:

**Stability:** Separated from strong oxidants, acids, water. Cool, dry conditions. Keep in a well-ventilated room.

**Conditions to avoid:** Keep away from water and acids. Keep phosphine concentrations as low as possible. Gives off Phosphine gas.

**Incompatible materials:** Moisture, acids, strong oxidizers.

**Hazardous decomposition products:** Phosphine gas.

#### 11. TOXICOLOGICAL INFORMATION:

**Acute toxicity:** (Technical) LD<sub>50</sub> Rat 45.7 mg /kg (Oral)  
Sheep 60 – 70 mg /kg (Oral)  
**Skin and Eye:** (Technical) Acute precutaneous LD<sub>50</sub> Rabbits 2000 – 5000 mg /kg  
Non – irritating to skin and eyes.

#### 12. ECOLOGICAL INFORMATION:

**Aquatic Toxicity:** Fish: Acute LC<sub>50</sub>: Bluegill Sunfish 0.8 mg /ℓ  
Rainbow Trout 0.5 mg /ℓ  
Birds: Acute oral LD<sub>50</sub>: Mallard Ducks 37.5 mg /kg  
Bobwhite quail 12.5 mg /kg  
Pheasants 9 mg /kg

(The above is applicable to the technical material)

**Biodegradability:** Phosphine is oxidized in the atmosphere to phosphates, which are harmless to the environment.

**Bioaccumulation:** Does not occur.

#### 13. DISPOSAL CONSIDERATIONS:

See section 6.

#### 14: TRANSPORT INFORMATION:

**Hazardous Description:** Zinc phosphide. Toxic to aquatic organisms, birds and mammals, toxic, flammable.

**Label:** Do not transport with food and foodstuffs.  
Flammable

**UN hazard class:** 4.3

**UN Subsidiary Class:** 6.1

**UN No.:** 1714

**Packing Group:** 1

#### 15. REGULATORY INFORMATION:

**National Legislation:** Registration numbers RSA: L4276, Act 36 of 1947

#### 16. OTHER INFORMATION:

**Only adult personnel, who have been well instructed in its use and are familiar with all the precautionary measures, should apply Curagel.**

Handle **Curagel** with extreme care.

Gas released by this product is toxic to all forms of animal and human life upon inhalation.

PHOSPHINE is flammable – Keep away from sparks and flame. Keep away from inhabited areas.

Never bring product into direct contact with water or any other liquid.

Store under lock and key in a cool, dry, well –ventilated place away from food and feedstuffs.

Keep out of reach of children, uninformed persons and animals.