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

<table>
<thead>
<tr>
<th>INGREDIENT NAME</th>
<th>/CAS NUMBER</th>
<th>EXPOSURE LIMITS</th>
<th>CONCENTRATION (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GUTHION</strong> (azinphos-methyl)</td>
<td>86-50-0</td>
<td>OSHA: 20 mg/m³ TWA (Skin)</td>
<td>22%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACGIH: 20 mg/m³ TWA (Skin)</td>
<td></td>
</tr>
<tr>
<td><strong>Ingredient 1967</strong></td>
<td></td>
<td></td>
<td>5-10%</td>
</tr>
<tr>
<td>Specific chemical identity is withheld as a trade secret.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>OSHA: Not Established</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ACGIH: Not Established</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ingredient 1966</strong> (at 5-10%) or Ingredients 1950 and 1832 (at 1-5% each) may be contained in this product as alternates to Ingredient 1967.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ingredient 1493</strong></td>
<td></td>
<td></td>
<td>50-60%</td>
</tr>
<tr>
<td>Specific chemical identity is withheld as a trade secret.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>OSHA: Not Established</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ACGIH: Not Established</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ingredient 1418</strong></td>
<td></td>
<td></td>
<td>5-10%</td>
</tr>
<tr>
<td>Specific chemical identity is withheld as a trade secret.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>OSHA: Not Established</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ACGIH: Not Established</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Naphthalene</strong></td>
<td>91-20-3</td>
<td>OSHA: 10.00 ppm TWA</td>
<td>5-10%</td>
</tr>
<tr>
<td></td>
<td>ACGIH: 10.00 ppm TWA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**3. HAZARDS IDENTIFICATION:**

**EMERGENCY OVERVIEW:**

**DANGER!** Toxic; Combustible

**Color:** Brown

**Form:** Liquid

**Odor:** Sulfur compounds

Organophosphate Insecticide - Cholinesterase Inhibitor; Harmful if inhaled or ingested; Harmful if absorbed through skin; Vapors or mist may be a fire and explosion hazard when exposed to high temperature or ignition.

**POTENTIAL HEALTH EFFECTS:**

**ROUTE(S) OF ENTRY:** Inhalation; Skin Contact; Skin Absorption; Eye Contact

**CARCINOGENICITY:** This product is not listed by NTP, IARC or regulated as a carcinogen by OSHA.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** No specific medical conditions are known which may be aggravated by exposure to the active ingredient in this product. However, any disease, medication or prior exposure which reduces normal cholinesterase activity may increase susceptibility to the toxic effects of the active ingredient. In addition, certain pre-existing skin disorders may be aggravated by exposure to this product due to the solvent components.
### 4. FIRST AID MEASURES:
**FIRST AID FOR EYES:** Hold eyelids open and flush with copious amounts of water for 15 minutes. Call a physician if irritation develops or persists after flushing.

**FIRST AID FOR SKIN:** Remove contaminated clothing. Wash affected areas immediately with soap and water. Get medical attention if irritation develops and persists. If signs of intoxication (poisoning) occur, get medical attention immediately.

**FIRST AID FOR INHALATION:** First, remove victim to fresh air or uncontaminated area. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention as soon as possible.

**FIRST AID FOR INGESTION:** This product could cause chemical pneumonitis through aspiration of the product into the lungs following accidental ingestion. If ingestion is suspected, contact physician or poison control center immediately. Seek medical assistance as soon as possible. Drink promptly a large quantity of milk, or if milk is not available, large quantities of water. DO NOT induce vomiting. Avoid alcohol. Do not attempt to give anything by mouth to an unconscious person.

**NOTE TO PHYSICIAN:** This product contains the organophosphorus insecticide, azinphos-methyl, a cholinesterase inhibitor. Cholinesterase inhibition results in stimulation of the central nervous system, the parasympathetic nervous system and the somatic motor nerves. If symptoms of organophosphate poisoning are present, the administration of atropine sulfate is indicated. Administer atropine sulfate in large, therapeutic doses. In mild cases, start treatment by giving 1-2 mg of atropine intravenously every 15 minutes until signs of atropinization appear (dry mouth, flushing, and dilated pupils if pupils were originally pinpoint). In severe cases, start treatment by giving 2-4 mg intravenously every 5-10 minutes until fully atropinized. Dosages for children should be appropriately reduced. 2-PAM is also antidotal and may be used in conjunction with atropine. Do not give morphine. Watch for pulmonary edema which may develop in serious cases of poisoning even after 24 hours. At first sign of pulmonary edema, place patient in oxygen tent and treat symptomatically. In case of poisoning, it is also requested that Bayer Corp., Agriculture Division, Kansas City, MO, be notified. Telephone: 1-800-414-0244.

### 5. FIRE FIGHTING MEASURES:
**FLASH POINT:** 156 °F

**FLAMMABLE LIMITS:**
- **UPPER EXPLOSIVE LIMIT (UEL)(%):** Not established
- **LOWER EXPLOSIVE LIMIT (LEL)(%):** Not established

**EXTINGUISHING MEDIA:** Water; Carbon Dioxide; Dry Chemical; Foam

**SPECIAL FIRE FIGHTING PROCEDURES:** Keep out of smoke, cool exposed containers with water spray. Fight fire from upwind position. Use self-contained breathing equipment. Contain runoff by diking to prevent entry into sewers or waterways. Equipment or materials involved in pesticide fires may become contaminated.

**UNUSUAL FIRE / EXPLOSION HAZARDS:** Gas Explosion Hazard: During the routine handling of this material there should be little risk of a gas explosion. However, this material decomposes rapidly above 150°F with a strong odor and dense smoke. The decomposition gases in air may be flammable. If a large vapor or smoke cloud develops, turn off any devices that may cause spark and leave the area until the cloud dissipates. See Section 10 for stability and reactivity information. Additional information is available upon request.

### 6. ACCIDENTAL RELEASE MEASURES:
**SPILL OR LEAK PROCEDURES:** Isolate area and keep unauthorized people away. Do not walk through spilled material. Avoid breathing vapors and skin contact. Remove sources of ignition if combustible or flammable vapors may be present and ventilate area. Wear proper protective equipment. Dike contaminated area with absorbent granules, soil, sand, etc. If large spill, material should be recovered. Small spills can be absorbed with absorbent granules, spill control pads, or any absorbent material. Carefully sweep up absorbed spilled material. Place in covered container for reuse or disposal. Scrub contaminated area with detergent and bleach solution and/or detergent and dye in water solution. Repeat. Rinse with water. Use dry absorbent material such as clay granules to absorb and collect wash solution for proper disposal. Contaminated soil may have to be removed and disposed. Do not allow material to enter streams, sewers, or other waterways or contact vegetation.

### 7. HANDLING AND STORAGE:
**STORAGE TEMPERATURE(MIN/MAX):** 45 °F / 30-day average not to exceed 100 °F

**SHELF LIFE:** Time/temperature-dependent. Specific information is available on request.

**SPECIAL SENSITIVITY:** Heat, Moisture

**HANDLING/STORAGE PRECAUTIONS:** Store in a cool, dry and well-ventilated area away from heat sources. Store in an area designated specifically for pesticides. Do not store near any materials intended for use or consumption by humans or animals.

### 8. PERSONAL PROTECTION:
**EYE PROTECTION REQUIREMENTS:** Goggles or face shield should be used when needed to prevent liquid splashes from getting into the eyes.

**SKIN PROTECTION REQUIREMENTS:** Avoid skin contact. Wear long sleeves and trousers and additional protective clothing when needed to prevent dermal exposure.

**HAND PROTECTION REQUIREMENTS:** Chemical-resistant gloves such as natural rubber.

**VENTILATION REQUIREMENTS:** Maintain exposure levels below the applicable exposure limits through the use of general and local exhaust ventilation.

**RESPIRATOR REQUIREMENTS:** When respiratory protection is needed based on the conditions of use, wear a NIOSH-approved organic vapor respirator with particulate pre-filter.

**MEDICAL SURVEILLANCE:** Plasma and/or red blood cell cholinesterase activity can be used to detect excessive absorption of Guthion. It is preferable to establish a pre-exposure baseline value for best comparisons. Contact Bayer Corporation, Agriculture Division, for additional information. If significant cholinesterase depression occurs, no further exposure should be allowed until cholinesterase values return to normal.

**ADDITIONAL PROTECTIVE MEASURES:** Clean water should be available for washing in case of eye or skin contamination. Educate and train employees in safe use of the product. Follow all label instructions. Launder clothing after use. Wash thoroughly after handling.
9. PHYSICAL AND CHEMICAL PROPERTIES:

<table>
<thead>
<tr>
<th>PROPERTY</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYSICAL FORM</td>
<td>Liquid</td>
</tr>
<tr>
<td>COLOR</td>
<td>Brown</td>
</tr>
<tr>
<td>ODOR</td>
<td>Sulfur compounds</td>
</tr>
<tr>
<td>MOLECULAR WEIGHT</td>
<td>317.3 (for GUTHION/azinphos-methyl)</td>
</tr>
<tr>
<td>BOILING POINT</td>
<td>Not established</td>
</tr>
<tr>
<td>MELTING/FREEZING POINT</td>
<td>45 °F (freeze point)</td>
</tr>
<tr>
<td>SOLUBILITY IN WATER</td>
<td>Negligible (for GUTHION/azinphos-methyl)</td>
</tr>
<tr>
<td>SPECIFIC GRAVITY</td>
<td>1.09 @ 20 °C/20 °C</td>
</tr>
<tr>
<td>BULK DENSITY</td>
<td>Not applicable</td>
</tr>
<tr>
<td>% VOLATILE BY VOLUME</td>
<td>Not established</td>
</tr>
<tr>
<td>VAPOR PRESSURE</td>
<td>1.6 x 10⁻⁶ mm Hg @ 20 °C (for GUTHION/azinphos-methyl)</td>
</tr>
<tr>
<td>VAPOR DENSITY</td>
<td>Not established (Air = 1)</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY:

| STABILITY                     | This is a stable material.                 |
| HAZARDOUS POLYMERIZATION      | Will not occur.                            |
| INCOMPATIBILITIES             | Strong oxidizing agents, alkalines        |
| INSTABILITY CONDITIONS        | Sustained temperatures above 100 °F       |

DECOMPOSITION PRODUCTS:

- Proposed compounds under severe conditions, such as fire or temperatures above 150 °F: H2S, CO, dimethyl sulfide, methyl mercaptan, SO2. See Section 5 for additional information.

11. TOXICOLOGICAL INFORMATION:

TOXICOLOGICAL INFORMATION continued:

MUTAGENICITY:

Several positive in vitro mutagenicity studies have been reported on azinphos-methyl. Negative results have been obtained in all in vivo studies conducted on azinphos-methyl.

DEVELOPMENTAL TOXICITY:

In a developmental toxicity study, rats were administered azinphos-methyl by oral gavage during gestation at doses of 0.5, 1.0 or 2.0 mg/kg. The NOELs for maternal and developmental toxicity were 1.0 and 2.0 mg/kg, respectively. In a developmental toxicity study using rabbits, azinphos-methyl was administered by oral gavage during gestation at doses of 1, 2.5 or 6 mg/kg. The NOELs for maternal and developmental toxicity were 1 and 6 mg/kg, respectively.

REPRODUCTION:

In a reproduction study using rats, azinphos-methyl was administered at dietary concentrations of 5, 15 or 45 ppm for 2 generations. Reproductive effects occurring in conjunction with maternal toxicity included decreased fertility, smaller litters, lower birth weights and reduced survival rates for pups. In a subsequent supplemental study, azinphos-methyl was administered at the same dose levels for 1 generation to investigate cholinesterase inhibition. The overall parental NOEL from these studies was less than 5 ppm based on cholinesterase inhibition. The reproductive NOEL was 5 ppm.

NEUROTOXICITY:

In a delayed neurotoxicity study, azinphos-methyl was administered by oral gavage to hens at a single dose of 330 mg/kg. Treatment was repeated on day 21 and the hens were observed for an additional 3 weeks. There was no evidence of delayed neurotoxicity occurring in the treated hens. In an acute neurotoxicity study using rats, azinphos-methyl was administered as a single oral dose at analytically confirmed levels of 2, 6 or 13 mg/kg for males and 1, 3 or 6 mg/kg for females. Effects observed included cholinergic symptoms, cholinesterase inhibition, decreases in motor and locomotor activity (evident in the figure-eight maze), and mortality for both sexes at the highest dose. The NOEL for motor and locomotor activity (evident in the figure-eight maze), and mortality for both sexes at the highest dose. The NOEL for motor and locomotor activity was 2 and 3 mg/kg for males and females, respectively. Excluding cholinergic responses, the NOEL for neurotoxicity was 13 mg/kg for males and 6 mg/kg for females, the highest doses tested. In a 13 week neurotoxicity study, azinphos-methyl was administered to rats at dietary concentrations of 15, 45 or 120 ppm for males and 15, 45 or 90 ppm for females. All clinical signs and neurobehavioral effects observed were ascribed to cholinergic toxicity, occurring at exposure levels that produced substantial inhibition of cholinesterase activity. There were no corroborative micropathologic findings within the neural tissues or skeletal muscle. Excluding cholinergic responses, the NOEL for neurotoxicity was 120 ppm for males and 90 ppm for females (highest doses tested).

12. ECOLOGICAL INFORMATION:

This product is extremely toxic to fish and wildlife. Bayer will provide a summary of specific data upon written request. As with any pesticide, this product should be used according to label directions and should be kept out of streams, lakes and other aquatic habitats of concern. IN EVENT OF A SPILL EMERGENCY, CALL 1-800-414-0244.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Follow container label instructions for disposal of wastes generated during use in compliance with the FIFRA product label. In other situations, bury in an EPA-approved landfill or burn in an incinerator approved for pesticide destruction. Do not reuse container.

EMPTY CONTAINER PRECAUTIONS: Do not reuse the container. Clean and empty containers should be disposed in accordance with state and local laws.
14. TRANSPORTATION INFORMATION:

TECHNICAL SHIPPING NAME: (Azinphos-methyl 22%)

FREIGHT CLASS BULK: Insecticides, NOI-NMFC 102100

FREIGHT CLASS PACKAGE: Insecticides, NOI-NMFC 102100

PRODUCT LABEL: Not Noted

DOT (DOMESTIC SURFACE):

PROPER SHIPPING NAME: Organophosphorus Pesticides, Liquid, Toxic, (Azinphos-methyl 22%), RQ *

HAZARD CLASS OR DIVISION: 6.1

UN/NA NUMBER: UN3018

PACKAGING GROUP: PG II

DOT PRODUCT RQ lbs (kgs): 4.5 lbs (2.0 kgs)

HAZARD LABEL(s): Toxic

HAZARD PLACARD(s): Toxic

* Product becomes a Marine Pollutant when shipped in Bulk or Non-Bulk by water.

IMO / IMDG CODE (OCEAN):

PROPER SHIPPING NAME: Organophosphorus Pesticides, Liquid, Toxic (Azinphos-methyl 22%), RO, Marine Pollutant

HAZARD CLASS DIVISION NUMBER: 6.1

UN NUMBER: UN3018

PACKAGING GROUP: II

HAZARD LABEL(s): Toxic; Marine Pollutant (Marking)

HAZARD PLACARD(s): Toxic; Marine Pollutant

ICAO / IATA (AIR):

PROPER SHIPPING NAME: Organophosphorus Pesticides, Liquid, Toxic (Azinphos-methyl 22%), RO

HAZARD CLASS DIVISION NUMBER: 6.1

UN NUMBER: UN3018

SUBSIDIARY RISK: None

PACKING GROUP: II

HAZARD LABEL(s): Toxic

RADIOACTIVE?: Non-Radioactive

15. REGULATORY INFORMATION:

OSHA STATUS: This product is hazardous under the criteria of the Federal


TSCA STATUS: This product is exempt from TSCA Regulation under

FIFRA Section 3 (2)(B)(ii) when used as a pesticide.

CERCLA REPORTABLE QUANTITY: 4.5 pounds of the formulation which

contains 1 pound of Guthion.

SARA TITLE III:

SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES: Azinphos-

methyl CAS #86-50-0 22%

SECTION 311/312 HAZARD CATEGORIES: Immediate Health Hazard;

Delayed Health Hazard; Reactive Hazard

SECTION 313 TOXIC CHEMICALS: Naphthalene CAS #91-20-3 7-9%

RCRA STATUS: If discarded in its purchased form, this product would not

be a hazardous waste either by listing or by characteristic. However,

under RCRA, it is the responsibility of the product user to determine at

the time of disposal, whether a material containing the product or

derived from the product should be classified as a hazardous waste. (40

CFR 261.20-24)

16. OTHER INFORMATION:

NFPA 704M RATINGS:

Health: 2 Flammability: 2 Reactivity: 2 Other:

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

Bayer’s method of hazard communication is comprised of Product Labels

and Material Safety Data Sheets. NFPA ratings are provided by Bayer as a

customer service.

REASON FOR ISSUE: Revise Sections 3; 4; 5 (Fire Fighting Procedures &

Unusual Fire/Explosion Hazards); 7-15; revise ANSI format

PREPARED BY: V. C. Standart

APPROVED BY: D. C. Eberhart

TITLE: Product Safety Manager

APPROVAL DATE: 02/10/1998

SUPERSEDES DATE: 03/22/1995

MSDS NUMBER: 08298

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