

## Material Safety Data Sheet

### Dinotefuran 10% + Tolfenpyrad 15% SC

#### 1. PRODUCT IDENTIFICATION

Product Name: Dinotefuran 10% + Tolfenpyrad 15% SC  
 Common Name: Dinotefuran; Tolfenpyrad  
 Chemical Family: Neonicotinoid (Dinotefuran);  
 METI acaricide (Tolfenpyrad)  
 Chemical Formula: C<sub>7</sub>H<sub>14</sub>N<sub>4</sub>O<sub>3</sub> (Dinotefuran);  
 C<sub>21</sub>H<sub>22</sub>ClN<sub>3</sub>O<sub>2</sub> (Tolfenpyrad);  
 Chemical Name: (RS)-1-methyl-2-nitro-3-(tetrahydro-3-furylmethyl)guanidine  
 (Dinotefuran);  
 4-chloro-3-ethyl-1-methyl-N-[4-(p-tolyloxy)benzyl]pyrazole-5  
 -carboxamide (Tolfenpyrad);  
 CAS No.: 165252-70-0 (Dinotefuran);  
 129558-76-5 (Tolfenpyrad);  
 Product Use: Insecticide

#### 2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Ingredient Name</u>	<u>CAS Registry Number</u>	<u>Typical Wt. % w/w</u>
Dinotefuran	165252-70-0	10%
Tolfenpyrad	129558-76-5	15%
Inert	-	to 100 %

#### 3. HAZARDS IDENTIFICATION

##### Emergency Overview

Off-White viscous liquid.

##### CAUTION!

KEEP OUT OF REACH OF CHILDREN

MAY CAUSE EYE AND SKIN IRRITATION

MAY CAUSE ALLERGIC SKIN REACTION.

#### 4. FIRST AID MEASURES

If swallowed: If swallowed, rinse mouth with water. Never give anything by mouth to an unconscious person. The patient should be sent to the hospital for symptomatic treatment with this label immediately.

If in eye: Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If on skin: Remove contaminated clothing immediately and rinse contaminated skin with plenty of water. Rinse with soap and then rinse with water. If the skin is inflamed, consult a doctor.

If Inhaled: Keep patient calm, remove to fresh air, and seek medical attention.

Notes to Physician: No special antidotes. Treat them according to their symptoms.

## 5. FIRE FIGHTING MEASURES

### Fire and explosive Properties

Auto-Ignition Temperature	Not available
Flash Point	Not applicable

### Extinguishing Media

Water fog, Carbon Dioxide, Dry Chemical, Foam.

### Fire Fighting Instructions

The product is not flammable. But if firing, fire fighters and others who may be exposed to products of combustion should wear full firefighting turn out gear and self-contained breathing apparatus. Firefighting equipment should be thoroughly decontaminated after use. Person who may have been exposed to contaminated smoke should be immediately examined by a physician and checked for symptoms of poisoning. The symptoms should not be mistaken for heat exhaustion or smoke inhalation.

## 6. ACCIDENTAL RELEASE MEASURES

### In Case of Spill or Leak

Stop the leak, if possible. Ventilated the space involved. Absorb, sweep up, place in container for disposal. Shut off or remove all ignition sources. Prevent waterway contamination. Construct a dike to prevent spreading. Protect works with water spray. Collect run-off water and transfer to drums or tanks for later disposal.

## 7. HANDLING AND STORAGE

### Handling

Harmful if swallowed, inhaled, or absorbed through the skin. Causes eye irritation. Do not breathe gas or allow to get in eyes, on skin, or on clothing. Wash hands, arm and face

thoroughly with soap and warm water after use and before eating or smoking. Wash all contaminated clothing with soap and hot water before reuse. Do not contaminate feed or food items. Keep out of reach of children.

### Storage

Store in a cool, dry, ventilated, rain-proof place. Keep container sealed. Keep away from fire and heat. Keep out of the reach of children and unrelated persons and locked. The storage area shall be provided with suitable materials for leakage.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Eye/Face Protection

Goggles and full-face shield should be used when needed to prevent liquid from face and getting into the eyes.

### Skin Protection

Avoid skin contact. Use chemical-resistant gloves, and wear long sleeves and trousers to prevent dermal exposure.

### Respiratory Protection

Under normal handling conditions no respiratory protection is needed. However, if needed to prevent respiratory irritation, either a respirator approved for dusts and mists, or one approved for pesticides

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Color:	Off-white
Physical state:	Viscous liquid
Odor:	No characteristic odor
Melting point	107.5 °C (Dinotefuran); 87.8–88.2 °C (Tolfenpyrad)
Vapor pressure:	$<1.7 \times 10^{-3}$ mPa (30 °C) (Dinotefuran) $5 \times 10^{-4}$ mPa (25 °C) (Tolfenpyrad)
Solubility in water:	In water 39.8 g/l (20 °C). (Dinotefuran) In water 0.087 mg/l (25 °C). (Tolfenpyrad)
Solubility in organic solvents:	In hexane $9.0 \times 10^{-6}$ , heptane $11 \times 10^{-6}$ , xylene $72 \times 10^{-3}$ , toluene $150 \times 10^{-3}$ , dichloromethane 61, acetone 58, methanol 57, ethanol 19, ethyl acetate 5.2 (all in g/l, 20 °C). (Dinotefuran) In <i>n</i> -hexane 7.41, toluene 366, methanol 59.6, acetone 368, ethyl acetate 339 (all in g/l, 25 °C). (Tolfenpyrad)

Partition coefficient:  $K_{ow} \log P = -0.66$  (25 °C, unstated pH). (Dinotefuran)  
 $K_{ow} \log P = 5.61$  (25 °C) (Tolfenpyrad)

## 10. STABILITY AND REACTIVITY

### Stability

Stable at 150 °C (DSC). Hydrolysis  $DT_{50} >1$  y (pH 4, 7, 9). Photodegradation  $DT_{50}$  3.8 h (sterilized/natural water). (Dinotefuran)

Stable to hydrolysis for 5 d at pH 4–9 (50 °C). (Tolfenpyrad)

### Hazardous Polymerization

Does not occur.

### Incompatibility

This product is not compatible with strong oxidizing agents.

### Hazardous Decomposition Products

Carbon oxides, nitrogen oxides.

## 11. TOXICOLOGICAL INFORMATION

Acute oral  $LD_{50}$ : Acute oral  $LD_{50}$  for male rats 2804, female rats 2000, male mice 2450, female mice 2275 mg/kg. (Dinotefuran)  
 Acute oral  $LD_{50}$  for male rats 260–386, female rats 113–150, male mice 114, female mice 107 mg/kg. (Tolfenpyrad)

Acute dermal  $LD_{50}$ : Acute percutaneous  $LD_{50}$  for male and female rats  $>2000$  mg/kg. (Dinotefuran)  
 Acute percutaneous  $LD_{50}$  for male rats  $>2000$ , female rats  $>3000$  mg/kg. (Tolfenpyrad)

Irritation: Slight eye and skin irritant (rabbits). (Dinotefuran)  
 Slightly irritating to eyes and skin (rabbits). (Tolfenpyrad)

Sensitization: Not a skin sensitizer (guinea pigs). (Dinotefuran)  
 Not a skin sensitizer (guinea pigs). (Tolfenpyrad)

Long-term Studies: Studies showed no evidence of carcinogenicity and mutagenicity to rats and rabbits.

## 12. ECOTOXICOLOGICAL INFORMATION

### Toxicity to bees:

Highly toxic to honeybees;  $LD_{50}$  (oral) 0.023 µg/bee; (contact) 0.047 µg/bee (*EPA Fact Sheet*). (Dinotefuran)

N/A. (Tolfenpyrad)

**Toxicity to fish and other aquatic organisms:**

LC<sub>50</sub> (96 h) for carp, rainbow trout and bluegill sunfish >100 ppm. Other aquatic spp. LC<sub>50</sub> (48 h) for crayfish 4.84 ppm. LC<sub>50</sub> (96 h) for eastern oysters 141, mysid shrimps 0.79 ppm. EC<sub>50</sub> for *Lemna gibba* >110 ppm. (Dinotefuran)

LC<sub>50</sub> (96 h) for carp 0.0029 mg/l. (Tolfenpyrad)

**Toxicity to birds:**

Acute oral LD<sub>50</sub> for Japanese quail >2000 mg/kg. LC<sub>50</sub> (5 d) for mallard ducks >5000 ppm (997.9 mg/kg daily), Japanese quail >5000 ppm (1301 mg/kg daily). (Dinotefuran)

N/A. (Tolfenpyrad)

**Toxicity to daphnia:**

EC<sub>50</sub> (48 h) >1000 ppm. (Dinotefuran)

LC<sub>50</sub> (48 h) 0.0010 mg/l. (Tolfenpyrad)

**Toxicity to algae:**

E<sub>b</sub>C<sub>50</sub> (72 h) for *Pseudokirchneriella subcapitata* >100 mg/l. (Dinotefuran)

E<sub>b</sub>C<sub>50</sub> (72 h) for green algae >0.76 mg/l. (Tolfenpyrad)

**Chemical Fate Information****Animals:**

In rats, extensively absorbed and completely eliminated within 168 h, mainly via urine. Little metabolism occurred. (Dinotefuran)

Following oral administration to rats, ≥80% was eliminated within 72 h, mainly in faeces. Tolfenpyrad was quickly metabolized to give many metabolites. Major metabolic pathway: amide hydrolysis, oxidation of alkyl moiety and their combinations. (Tolfenpyrad)

**Plants:**

In lettuce, metabolites include 1-methyl-3-(tetrahydro-3-furylmethyl) guanidine and 1-methyl-3-(tetrahydro-3-furylmethyl) urea. (Dinotefuran)

In cabbage, peach anaubergines, tolfenpyrad was not systemic and gradually metabolized in plant to give many minor metabolites. Major metabolic pathway: amide hydrolysis, oxidation of alkyl moiety and their combinations. (Tolfenpyrad)

**Soil/Environment:**

Aqueous photolysis DT<sub>50</sub> 1.8 d. Soil DT<sub>50</sub> 50–100 d. The major degradate is 1-methyl-2-nitroguanidine. (Dinotefuran)

DT<sub>50</sub> (aerobic) 3–5 d, (anaerobic) 127–179 d (2 soil types); degradation proceeds by oxidation of the tolyl methyl or of the ethyl group, cleavage of the tolyloxybenzyl group and cleavage of the amide bond, ultimately forming CO<sub>2</sub>. K<sub>ads</sub> 722–1522, K<sub>oc</sub> 15.1 × 10<sup>3</sup> to 149 × 10<sup>3</sup>. (Tolfenpyrad)

## 13. DISPOSAL CONSIDERATIONS

### **Waste Disposal**

For the packaging container, completely remove the residual agent from the material in the barrel. Landfill or incineration can be used if local authorities permit. Do not reuse empty containers. The residue should be disposed of in strict accordance with the label requirements.

## 14. TRANSPORT INFORMATION

UN number: UN3082

Class and subsidiary risk: Division 9

Packing group: III

## 15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

## 16. OTHER INFORMATION

The information contained herein relates only to the specific material identified. We believe that such information is accurate and reliable as of the date of this material safety data sheet, but no representation, guarantee or warranty, express or implied, is made as to the reliability or completeness of the information. Urge persons receiving this information to make their own determination as to the information's suitability and completeness for their particular application.

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