MATERIAL SAFETY DATA SHEET

DINODOR SL

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1	**IDENTIFICATION OF THE SUBSTANCE/PREPARATION**	DINODOR SL (Dinotefuran 200 g/L SL – soluble concentrate)
	CHEMICAL NAME	IUPAC: 2-methyl-1-nitro-3-[(tetrahydro-3-furanyl) methyl] guanidine
1.2	**OTHER MEANS OF IDENTIFICATION**	N/A
1.3	**USE OF PREPARATION**	Insecticide
1.4	**COMPANY/UNDERTAKING INDENTIFICATION**	Dor.Ky D&D LTD P.O.B. 232 Nes Ziona, 70400, Israel Tel: +972-8-933 3474 Fax: +972-8-933 0109
1.5	**EMERGENCY TELEPHONE NUMBER**	The Israeli Poisoning Centre Tel: +972-4-777 1900 Fax: +972-4-854 2029

2. HAZARDOUS IDENTIFICATION

2.1 Classification of the mixture

2.1.1 Classification according to GHS Regulations

- **Health hazards:** Eye Irrit. 2B – Category 2 –--------- – H320
- **Environmental hazards:** Aquatic Chronic 1 – Category 1 - Warning - H410
  Dinotefuran is highly toxic to honeybees and other pollinator insects.

2.2 label elements

- **Hazard pictograms:**

- **Hazard pictograms-Codes:** GHS09
- **Signal words:** Warning

Hazard statements: H303 - May be harmful if swallowed
H313 - May be harmful in contact with skin
H333 - May be harmful if inhaled

H320 **-** Causes eye irritation
H410 – Very toxic to aquatic life with long lasting effects

Precautionary statements:

- Preventive:	P264**:**	Wash any contaminated body part thoroughly
	P273:	Avoid release to the environment.
	P280:	Wear eye protection/face protection.
- Response:	P391:	Collect spillage.
	P305 + P351 + P338:	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P337 + P313:	If eye irritation persists: Get medical advice/attention.
- Disposal:	P501:	Dispose of contents/container in accordance with local regulation
- **Storage**:	P102:	Keep out of the reach of children

3. COMPOSITION/INFORMATION ON INGREDIENTS

Information on hazardous ingredients*

Common name	CAS No.	%	EC Number	Symbol	Hazard
Dinotefuran	165252-70-0	20	605-399-0		Acute Tox 4 - H302 Aquatic Chronic 1 – H410
Propyl(2S)-2- hydroxy propanoate	53651-69-7	30.5	611-025-7		Eye Dam. 1 – H318
Other ingredients (non-active)		up to 100%			

For occupational exposure limits, see section 8
For the full text of the H statements in this section, see section 16.

4. FIRST AID MEASURES

4. 1 Description of first aid measures

4.1.1	**EYE CONTACT**	Wash out with plenty of water with the eyelid held wide open for at least 15 minutes. Get medical attention
	SKIN CONTACT	Remove contaminated clothing. Wash away remainder with water and soap

	INHALATION	Remove victim to fresh air. If breathing is difficult: artificial respiration. Get medical attention.
	INGESTION	Wash out mouth with plenty of water. Get medical attention. Never give anything by mouth to an unconscious person.
4.1.2	**Advice**	Remove victim from area of exposure. Wash off remaining material with plenty of water. For more medical advice sec Section 4.1.1.
4.2	**Most important symptoms and effects, both acute and delayed**	In general, no effects are expected for oral, dermal and inhalation routes under conditions for normal use. The product may cause serious reversible eye damage; burning feeling, temporary redness, and pain.
4.3	**Indication of any immed-iate medical attention and special treatment needed**	**Note to physician:** No special antidote. Treat symptomatically and supportively.

5. FIRE-FIGHTING MEASURES		
5.1	**Firefighting media:**	Water spray, foam, carbon dioxide and sand
5.2	**Special hazards arising from the substance or mixture**	In a fire, formation of hydrogen cyanide, carbon monoxide and nitrogen gas can be expected.
5.3	**Advice for firefighters**	**For fire-fighters:** Self-contained breathing apparatus and total protection required in enclosed areas. Keep unnecessary people away. If it can be done safely, remove intact containers from the fire. Otherwise, use water spray to cool them. Bund area with sand to prevent contamination of drains or waterways. Dispose of fire control water, other distinguishing agent or spillage later on. Do not release contaminated water into the environment.

6. ACCIDENTAL RELEASE MEASURES		
6.1	**Personal precautions**	Avoid contact with spilled material or contaminated surfaces. When dealing with spills do not eat, drink, or smoke and wear protective clothing and equipment as described in Section 8. Keep people and animals away.
6.2	**Environmental precautions**	Do not discharge into drains or the environment
6.3	**Methods for cleaning up**	contain spills and absorb with earth, sand, clay, or other absorbent material. Collect and store in properly labeled sealed, drums for safe disposal. Deal with all spillages immediately. If contamination of drains, streams, watercourses, etc. is unavoidable, warn the local water authority.

7. HANDLING AND STORAGE		
7.1	**Handling**	Keep out of reach of children. Wash hands thoroughly with soap after handling and before eating, drinking, and smoking. After each day's use, wash gloves and contaminated clothing

7.2	Storage	Keep only in the original container. Keep in a cool, dry, well ventilated place away from direct sunlight. Flammability: not flammable

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

8.1	**Control parameters**	
	Industrial Hygiene measures	Ventilation required. When handlings do not eat, drink or smoke. Wash hands thoroughly after handling. Wash clothing separately before re-use. Contaminated work clothing should not be allowed out of the workplace.
	Personal protective equipment	
	- Respiratory system	Respiratory protection is not required if good ventilation is maintained. However, If operating conditions result in airborne concentrations of this material, the use of an approved respirator is recommended.
	- Skin and body	Applicators and other handlers must wear long-sleeved shirt and long pants, shoes plus socks and chemical-resistant gloves made of any waterproof material. Remove and wash contaminated clothing separately
	- Hands	Chemical resistant gloves.
	- Eyes	Safety goggles or face shield
8.2	**Occupational Exposure Limits**	
	Dinotefuran	Not established
	Propyl(2S)-2- hydroxy propanoate	Not established

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	Clear brown liquid (Soluble concentrate, SL)
COLOUR	Brown
ODOUR	Slight specific odour
FLASH POINT	> 100°C
FLAMMABILITY	Non-flammable
DENSITY	1.0-1.04 g/mL
WATER SOLUBILITY	Soluble in water
pH (10% in water)	3-5

10. STABILITY AND REACTIVITY

10.1	**Reactivity**	The product is not reactive during storage
10.2	**Chemical stability**	Stable under normal storage conditions.
10.3	**Possibility of hazardous reactions**	Not known
10.4	**Conditions to avoid**	Extreme heat
10.5	**Incompatible materials**	Strong acids and alkalis
10.6	**Hazardous decomposition products**	None under normal conditions. In a fire, formation of, hydrogen cyanide, Carbon monoxide and nitrogen oxide gases can be expected

11. TOXICOLOGICAL INFORMATION – *product data*		
11.1	**Acute oral toxicity, rat**	LD_{50} > 5,000 mg/kg
11.2	**Acute dermal toxicity, rat**	LD_{50} > 5,000 mg/kg
11.3	**Acute inhalation toxicity, rat**	LC_{50} > 4.23 mg/L (4-h, exposure; max attainable concentration)
11.4	**Skin irritation, rabbit**	Not classified
11.5	**Eye irritation, rabbit**	Irritant
11.6	**Sensitization, guinea pig**	Not classified

Data is for Dinotefuran:

Sub-chronic and Chronic Toxicity

The main target tissues are the nervous system and the immune system, with effects seen in several species. Nervous system toxicity is manifested as clinical signs and decreased motor activity seen after acute dosing (in both rats and rabbits) and increased motor activity seen after repeated dosing; these findings are consistent with effects on the nicotinic cholinergic nervous system.

NOAEL: 99.7/127.3 [M/F] mg/kg/day

Developmental and Reproductive Toxicity

No adverse effects in fetuses were seen in the developmental toxicity studies in rats or rabbits, at maternally toxic doses, and offspring (including decreased spleen and thymus weights, and decreased grip strength) effects in the reproduction study occurred at the same doses causing parental effects.

Prenatal developmental toxicity study (rats): **Maternal** NOAEL: 300 mg/kg/day
Developmental NOAEL: 1,000 mg/kg/day

Prenatal developmental toxicity study (rabbits): **Maternal** NOAEL: 52 mg/kg/day
Developmental NOAEL: 300 mg/kg/day

Carcinogenicity:

Dinotefuran has been classified as —Not likely to be carcinogenic to humans. “This classification is based on the lack of evidence for carcinogenicity in mice and rats.

Mutagenicity

There is no concern for mutagenicity resulting from exposure to dinotefuran.

Toxicological classification

Based on the data presented above, there is no sub-chronic/chronic toxicological classification for Dinotefuran.

12. ECOLOGICAL INFORMATION *(there is no data on the product; data given below is for Dinotefuran:*

12.1 Ecotoxicity of the product:

Fish

LC_{50} (96 hours) Rainbow trout > 100 mg/L
LC_{50} (96 hours) Bluegill Sunfish > 100 mg/L
LC_{50} (96 hours) Common Carp > 100 mg/L
LC_{50} (96 hours) Sheepshead Minnow > 100 mg/L

Daphnia magna
NOEC (lifecycle) > 1,000 mg/L
LC_{50} (96 h) saltwater > 10 mg/ L

Other organisms
Mysid Shrimp: NOEC saltwater (lifecycle) = 0.79 mg/L
Mysid Shrimp: EC_{50} (96 hr) = 0.089 mg/L
Oyster Shell Deposition: ErC_{50} (0- 72 hr) > 141 mg/L

Algae *(Pseudokirchneriella subcapitata)*
ErC_{50} (96 days) > 100 mg/L

Birds
Oral LD_{50} Japanese quail (*Coturnix japonica*) > 2,000 mg/kg
Dietary LC_{50} (5 days) Mallard duck > 997.9 ppm
Dietary LC_{50} (5 days) Japanese quail (*Coturnix japonica*) >1,301ppm
Reproduction quail: NOEL = 5000 ppm
Reproduction: Mallard duck: NOEL = 2000 ppm

Bees and other non-target organism toxicity
Dinotefuran Technical is highly toxic to bees. The acute oral and contact LD_{50} in bees were 0.056 µg/bee and 0.022 ug/bee, respectively. This product is highly toxic to bees or other pollinating insects exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees or other pollinating insects are foraging in the treatment area.

Dinotefuran is toxic to shrimp. Do not apply directly to water, to areas where surface water is present or to intertidal areas below mean high water mark. Do not apply where runoff is likely to occur. Do not apply where weather conditions favour drift from areas treated. Do not contaminate water when cleaning equipment or disposing of equipment wash water or rinse.

12.2 Persistence/degradability:
Soil
Parent molecule is not persistent
Photolysis /photodegradation is a major degradation pathway for dinotefuran

Degradability:
DT_{50} of Dinotefuran is 19.2 days

Water/sediment
DT_{50} (pond system) = 88.3 days
DT_{50} (river system) = 112 days

Ready biodegradability: No.

12.3 Bio-accumulative potential: Low. The log octanol/water partition co-efficient was -0.64 at pH7 therefore the active substance does not have the potential to bio-

accumulate.

12.4 Mobility in soil

The adsorption and desorption of dinotefuran has been shown to be influenced by the organic content of the soil matrix. The arithmetic mean KOC value of 31.4 L.kg-1 (from the advanced study using 5 different soil types) suggests that the compound would not adsorb strongly to soil and would very easily undergo desorption, suggesting a potential for high mobility in the soil compartment.

13. DISPOSAL CONSIDERATION

Product would be treated, stored, transported, and disposed of according to the local waste regulation authority. Do not flush to surface water or sanitary sewer system

14. TRANSPORT INFORMATION

UN number: 3082
Transport hazard class(es): 9 Subsidiary Risk: None
Packaging group III
Description of the goods ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Dinotefuran SOLUTION)

15. REGULATORY INFORMATION

15.1 Safety, health, and environmental regulations/legislation specific for the substance or mixture

Ensure all national/local regulations are observed.

15.2 Chemical Safety Assessment

16. OTHER INFORMATION:

The information contained in the Safety data sheet is correct to the best of our knowledge at the date of issue. It is intended as a guide for the safe use, handling, disposal, storage, and transportation and is not intended as warranty or as a specification. The information relates only to the product specified and may not be suitable for combinations with other materials or in processes other than those specifically described herein.

Text for phrases appear in section 3:

***Hazard (H) statements**:*

H302: Harmful if swallowed
H318: Causes serious eye damage
H410: Very toxic to aquatic life with long lasting effects

Date: March 2021