INDOFIL INDUSTRIES LIMITED
Kalpataru Square, 4th Floor,
Kondivita Road, Off Andheri
Kurla Road, Andheri (E),
Mumbai – 400 059 (INDIA)
PHONE NO: +91-22-6663 7373

SAFETY DATA SHEET

THIFLUZAMIDE 24% SC (REFLIO)

Table of contents

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

Product name **THIFLUZAMIDE 24% SC (REFLIO)**

Intended use Fungicide.

Supplier: INDOFIL INDUSTRIES LIMITED
Kalpataru Square, 4th Floor,
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2. ♣ COMPOSITION/INFORMATION ON INGREDIENTS

2.1. THIFLUZAMIDE:

CAS name ..... 2',6'-Dibromo-2-methyl-4'-trifluoromethoxy-4-trifluoromethyl-1,3-thiazole- 5-carboxanilide

CAS no..... 130000-40-7

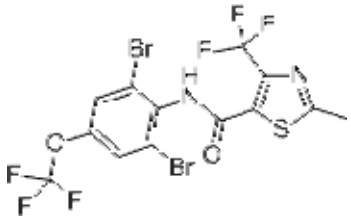
IUPAC name ..... N-[2,6-dibromo-4-(trifluoromethoxy)phenyl]-2-methyl-4-(trifluoromethyl)-1,3-thiazole-5-carboxamide

ISO name ..... **Thifluzamide**

Molecular formula $C_{13}H_6Br_2F_6N_2O_2S$

Molecular mass 528.06

Structural formula .....



2.2. TYPICAL CONTENT

Active ingredient	Thifluzamide …….....	24.00	% by weight
Other inert ingredients	Emulsifier, carrier, etc.	76.00	% by weight

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3. ♣ HAZARDS IDENTIFICATION

3.1. Classification of the substance or mixture:

Environmental Hazard: Hazardous to aquatic environment, long-term (Chronic) Category 1

3.2. Label elements:

Hazard pictograms:

Signal word: Warning

Hazard Statements:

H410: Very toxic to aquatic life with long lasting effects.
H317: May cause an allergic skin reaction.

Precautionary Statements:

Response:
P391: Collect spillage.

Disposal:
P501: Dispose of contents/container to in accordance with local and national regulations.

4. ♣ FIRST AID MEASURES

4.1.	Signs and symptoms of exposure ..	Have the product container, label or Material Safety Data sheet with you when going for treatment. Tell person contacted the complete product name and the type and amount of exposure.
4.2.	Emergency and first aid procedures	
	Inhalation	Move the victim to fresh air. If breathing is irregular or stopped, administer artificial Keep patient warm and at rest. Call a physician immediately.
	Ingestion	If swallowed, seek medical advice immediately and show this container or label. Do not induce vomiting.
	Eye contact	Immediately flush eyes with much water or eyewash solution, occasionally opening eyelids, until no evidence of chemical remains. Remove contact lenses after a few minutes and flush again. See physician if irritation persist.
	Skin contact	Immediately flush skin with much water while removing contaminated clothing and shoes. Wash with water and soap. See physician if any symptom develops.
4.3.	Note to physician	There is no specific antidote against this substance. Treatment is supportive and symptomatic.

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5. ♣ FIRE-FIGHTING MEASURES

5.1.	Extinguishing media and procedure	Dry chemical or carbon dioxide for small fires, water spray or foam for large fires. Use water spray to keep fire-exposed containers cool. Approach fire from upwind to avoid hazardous vapor's and toxic decomposition products. Fight fire from protected location or maximum possible distance. Avoid heavy hose streams. Dike area to prevent water runoff. Firemen should wear self-contained breathing apparatus and protective clothing.
5.2.	Hazardous decomposition products in a fire	The essential breakdown products are volatile, toxic, irritant and inflammable compounds such as nitrogen oxides, sulphur dioxide, carbon monoxide and carbon dioxide.
5.3.	Unusual fire and explosion hazards	–

6. ♣ ACCIDENTAL RELEASE MEASURES

6.1. Personal protection ..... Observe all protection and safety precautions when cleaning up spills. Depending on the magnitude of the spill this may mean wearing safety glasses, gloves, and rubber boots. See section 8, Personal protection.

6.2. Steps to be taken in case of spill..... It is recommended to have a predetermined plan for the handling of spills. Empty vessels for the collection of spills should be available.

Stop the source of the spill immediately if safe to do so. Contain the spill to prevent any further contamination of surface, soil, or water.

Spills on the floor or other impervious surface should be swept up immediately and collected in suitable containers. Rinse area with strong industrial detergent and much water. Absorb wash liquid onto suitable inert absorbent such as universal binder, Fuller's earth, bentonite, or other absorbent clay and transfer contaminated absorbent to similar containers. Washings must be prevented from entering surface water drains.

Large spills which soak into the ground should be dug up and placed in suitable containers.

Spills in water should be contained as much as possible by isolation of the contaminated water. The contaminated water must be collected and removed for treatment or disposal. Uncontrolled discharge into water courses must be alerted to the appropriate regulatory body.

The used containers should be properly closed and labelled. Refer to section 13 for disposal.

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7. ♣ HANDLING AND STORAGE

7.1. Precautions to be taken in handling — In an industrial environment it is recommended to avoid all personal contact with the product, if possible, by using closed systems with remote system control. Otherwise, the material should preferably be handled by mechanical means. Adequate ventilation or local exhaust ventilation is required. The exhaust gases should be filtered or treated otherwise. For personal protection in this situation, see section 8.

For its use as a pesticide, first look for precautions and personal protection measures on the officially approved label on the packaging or for other official guidance or policy in force. If these are lacking, see section 8. The precautions of section 8 are primarily meant for handling of the undiluted product and for preparing the spray solution but can be recommended for spraying as well.

7.2. Precautions to be taken in storing — The product is stable under normal conditions of warehouse. storage.

Store in closed, labelled containers. The storage room should be constructed of incombustible material, closed, dry, and ventilated and with impermeable floor, without access of unauthorized persons or children. The room should exclusively be used for storage of chemicals and especially foodstuffs, drinks, feed or seed should not be present. A warning sign reading “POISON” is recommended.

7.3. Specific use ..... The product is a registered pesticide and may only be used for the applications it is registered for in accordance with a label approved by the regulatory authorities.

7.4. Fire and explosion precautions ..... Keep away from sources of ignition and protect from exposure to fire and heat.

8. ♣ EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Exposure limit values ..... Not established for Thifluzamide.

However, other threshold limit values defined by local regulations may exist and must be observed.

8.2. Personal protection ..... When used in a closed system, personal protection equipment will not be required. The following is meant for other situations, when the use of a closed system is not possible, or when it is necessary to open the system. Consider the need to render equipment or piping system non-hazardous before opening.

Respiratory protection ..... A combination gas, vapor and particulate respirator may be necessary until effective technical measures are installed. Protection provided by air-purifying respirators is limited. Use a self-contained breathing apparatus in cases of emergency spills, when exposure levels are unknown, or under any circumstances where air-purifying respirators may not provide adequate protection.

Protective gloves ..... Wear chemical resistant gloves, such as barrier laminate, butyl rubber, nitrile rubber or Viton. The breakthrough times of these materials for Thifluzamide are unknown, but it is expected that they will give adequate protection based on the low dermal toxicity of the substance.

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	Eye protection	Wear safety glasses. It is recommended to have an emergency eye wash fountain immediately available in the work area when there is a potential for eye contact.
	Other protection	Wear coveralls or long-sleeved shirt and long pants. Wear shoes plus socks.
8.3.	Work/hygienic practices	Keep all unprotected persons and children away from working area. Avoid contact with eyes, skin or clothing. Avoid breathing spray mist. Wash thoroughly with water and soap after handling. Remove contaminated clothing immediately and wash before reuse.
8.4.	Environmental exposure controls	See section 13.

9. ♣ PHYSICAL AND CHEMICAL PROPERTIES

9.1.	Physical state	Viscous liquid
9.2.	Colour	Light Brown to off White
9.3.	Odour	Characteristic Mild Odour
9.4.	Melting point	Not available
9.5.	Boiling point	Not available
9.6.	Relative density	1.15 ± 0.04 gm/cc
9.7.	Viscosity	500 to 900 CPS
9.8.	Solubility in water	Form suspension in water
9.9.	Solubility in organic solvents	Not available
9.10.	Partition coefficient n-octanol/water	Not available
9.11.	Surface tension	Not available
9.11.	pH	4 to 8 (1% solution in water at 30°C)
9.12.	Flash point	Formulation content good amount of water i.e. (>60%) hence flash point can't be determined
9.13.	Autoignition temperature	Based on the water content the product does not ignite
9.14.	Explosive properties	Based on Chemical composition not found explosive
9.15.	Oxidizing properties	Not oxidizing, incompatible with strong oxidizing agents.

10. ♣ STABILITY AND REACTIVITY

10.1.	Thermal decomposition	This product is unlikely to react or decompose under normal storage conditions. Stable at ambient temperatures.
10.2.	Hazardous decomposition products	Decomposition will evolve hydrogen bromide or hydrogen flouride
10.3.	Materials to avoid	–

11. ♣ TOXICOLOGICAL INFORMATION

11.1. Assessment largely or completely based on data for active substance.

Oral LD_{50} – rat > 6500 mg/kg b.w.
Dermal LD_{50} – rat > 2000 mg/kg
Inhalation LC_{50}-rat: > 5 mg/L
Eye Irritation – rabbit: Slight irritant
Skin Irritation – rabbit: slight irritant
Skin Sensitization (Guinea Pig) > Non skin sensitizer

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12. ♣ ECOLOGICAL INFORMATION

12.1. Ecotoxicity .....
Bird Oral LD_{50}: > 2250 mg/kg (Bobwhite quail and Mallard Ducks)
Dietary Oral LC50: >5620 mg/kg (Bobwhite quail and Mallard Ducks)
Fish LC_{50} : 1.2 (96 h) Bluegill Sunfish; 1.3 Rainbow trout; Carp 2.9 mg/l
Daphnia EC_{50} : 1.4 ppm (48 h)
Algae EC_{50}: 1.3 mg/l
Honey Bee LD_{50}: 100 (Contact)
Earthworm LC_{50}: > 1250 mg/kg

Environmental fate: Animals extensively metabolized by five primary pathways. Plants Thifluzamide residues in the leaf mainly as the parent molecule. Soil / Environment does not degrade readily by hydrolysis. Microbial degradation in soil is slow

13. ♣ DISPOSAL CONSIDERATIONS

13.1. Waste disposal method ..... Do not contaminate ponds, waterways or ditches with chemical or used container. Do not dispose of waste into sewer.
Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations.

Do not contaminate water, foodstuffs, feed or seed by storage or disposal.

13.2. Packaging/container disposal ..... Triple rinse (or equivalent) and offer for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill.

Disposal of waste and packaging must always be in accordance with all applicable local regulations.

14. ♣ TRANSPORT INFORMATION

ADR/RID CLASSIFICATION

Proper shipping name ..... Environmentally hazardous substance, liquid, n.o.s. (Thifluzamide)
Class 9
UN no 3082
Packaging group III

IMDG CLASSIFICATION

Proper shipping name ..... Environmentally hazardous substance, liquid, n.o.s. (Thifluzamide)
Class 9
UN no 3082
Packaging group III
Marine Pollutant ..... Marine pollutant

IATA CLASSIFICATION

Proper shipping name ..... Environmentally hazardous substance, liquid, n.o.s. (Thifluzamide)
Class 9
UN no 3082
Packaging group III

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15. ♣ REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Substance of Very High Concern (SVHC) according to the
REACH Regulations (EC) No.1907/2006
Not listed

15.2 Chemical safety assessment A chemical safety assessment has not been carried out.

16. ♣ OTHER INFORMATION

Further information

This material should only be used by persons who are made aware of its hazardous properties and have been instructed in the required safety precautions.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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The information provided in this safety data sheet is believed to be accurate and reliable but uses of the product vary and situations unforeseen by **INDOFIL** may exist. The user has to check the validity of the information under local circumstances.