SAFETY DATA SHEET
THIFLUZAMIDE TECHNICAL

1: Identification

1.1 Identification

Substance Name	:	Thifluzamide Technical
IUPAC Name	:	2′,6′-dibromo-2-methyl-4′-trifluoromethoxy-4-trifluoromethyl-1,3-thiazole-5-carboxanilide
CAS No	:	130000-40-7
EC/ List No	:	603-378-0
Formula	:	$C_{13}H_6Br_2F_6N_2O_2S$
Synonyms:	:	N-[2,6-dibromo-4-(trifluoromethoxy)phenyl]-2-methyl-4-(trifluoromethyl)-1,3-thiazole-5-carboxamide Thifluzamide

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture	:	Fungicide
Relevant identified uses	:	To make its formulations for agricultural use only.
Uses advised against:	:	Not known

1.3. Details of the supplier of the safety data sheet

Manufacturer / Supplier	:	NACL Industries Limited
Address	:	Plot No.12-A, 'C' Block, Lakshmi Towers, Nagarjuna Hills, Panjagutta, Hyderabad- 500082. Telangana INDIA
Email Id	:	info@naclind.com
Web site address	:	www.naclind.com
Tele Fax Number	:	T 0091 4033605264

1.4. Emergency telephone Number

Emergency number	:	0091 4033605264 (Monday – Friday - 09.30 hrs to 18.00 hrs)

2: Hazard(s) identification

GHS classification :

2.1: Classification of the substance or mixture :

Hazardous to the aquatic environment, acute hazard	:	H400	Category 1
Hazardous to the aquatic environment, long-term hazard	:	H410	Category 1

For the full text of the H-Statements mentioned in this Section, see Section 16

2.2 Label elements

Hazard Pictograms :

GHS 09

Signal word	:	Warning
Hazard Statements	:	H400: Very toxic to aquatic life H410 Very toxic to aquatic life with long lasting effects
Precautionary Statements	:	P273 - Avoid release to the environment P391 - Collect spillage P501 - Dispose of contents/ container to an approved waste disposal plant.

2.3. Other hazards

Other hazards not contributing to the Classification: None

2.4. Unknown acute toxicity

Not applicable

3 : Composition/ Information on ingredients

3.1 Substance

Substance type : Mono-constituent

Name	Product Identifier	% /w/w	GHS Classification
Thifluzamide	(CAS No) 130000-40-7 (EC No) 603-378-0	*96*	H400, H 410
Related reaction products	----	*04*	--

Full text of the hazard classes and H-Statements: see Section 16

3.2 Mixture

Not applicable

4: First aid measures

4.1 Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.

First-aid measures after skin contact : Remove contaminated clothes. Wash skin with plenty of water. If skin irritation or rash occurs: Get medical advice/attention.

First-aid measures after eye contact : Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if pain, blinking or redness persist.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Call a POISON CENTER or doctor/physician if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

No data available

4.3. Indication of any immediate medical attention and special treatment needed

No data available

5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Dry Powder / Foam/ water fog /water spray

Unsuitable extinguishing media : DO NOT Use water Jet as an extinguisher, as this will spread fire.

5.2. Special hazards arising from the substance or mixture

Carbon oxides, Nitrogen oxides (NOx), Sulphur oxides, Hydrogen bromide gas, Hydrogen fluoride. Combustible

5.3 Advice for Firefighters

Firefighting Instructions : LARGE FIRE: Water spray, fog or regular foam. Move containers from fire area if you can do it without risk. Dike fire-control water for later disposal; do not scatter the material. Use water spray or fog; do not use straight streams.

FIRE INVOLVING TANKS OR CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.

Do not get water inside containers. Cool tanks/drums with water spray/remove them into safety location. Do not move the load if exposed to heat. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.

Protection during firefighting	:	Do not enter fire area without proper protective equipment, including respiratory protection

6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

Protective equipment	:	Corrosion-proof suit. Refer "Material-Handling" to select protective clothing.
Emergency Procedures	:	Mark the danger area. Consider evacuation. Close doors and windows of adjacent premises. Stop nearby engines and no smoking. Keep containers closed. Wash contaminated clothes. As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids. SPILL: Increase, in the downwind direction, as necessary, the isolation distance shown above. FIRE: If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2016)

6.1.2 For emergency responders

Protective equipment	:	Equip cleanup crew with proper protection. Wear positive pressure self-contained breathing apparatus (SCBA). Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection. Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible. (ERG, 2016)
Emergency Procedures	:	Stop leak if safe to do so. Ventilate area

6.2 Environmental Precautions

Prevent soil and water pollution. Prevent spreading in sewers, water bodies.

6.3 Methods and material for containment and cleaning up

For Containment	:	Measure the concentration of the explosive gas-air mixture. Provide equipment/receptacles with earthing. Do not use compressed air for pumping over spills.
Methods of cleaning up	:	Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Scoop spilled substance into closing containers. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/ authorized disposal facility. Wash clothing and equipment after handling

6.4 Reference to other sections

No additional information available

7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	:	Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Keep the substance free from contamination. clean/dry the installation before use. Do not discharge the waste into the drain. Do not use compressed air for pumping over. Keep container tightly

		closed.
		work under local exhaust/ventilation. Exhaust gas must be neutralized.
Hygiene measures	:	Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work

7.2. Conditions for safe storage, including any incompatibilities

Storage temperature	:	Recommended storage atmospheric Normal temperature.
Heat-ignition	:	KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.
Prohibitions on mixed storage	:	KEEP SUBSTANCE AWAY FROM: combustible materials. Reducing agents, Oxidizing agents. (strong) bases. Esters, halides.
Storage area	:	Store in a dry area. Ventilation at floor level. Keep out of direct sunlight. Meet the legal requirements.
Special rules on packaging	:	SPECIAL REQUIREMENTS: closing. dry. clean. correctly labelled. meet the legal requirements. secure fragile packaging's in liquid containers.
Packaging Materials	:	SUITABLE MATERIAL: HDPE

8: Exposure controls/personal protection

8.1 Control Parameters

Components with workplace control parameters

8.2 Exposure controls

Appropriate engineering controls		Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Material should be handled safely
Personal protective equipment		Protective goggles. Gloves. Protective clothing. Face shield. Gas mask with filter. 
Materials for protective clothing	:	GIVE EXCELLENT RESISTANCE: butyl rubber. polyethylene/ethylene vinyl alcohol. GIVE GOOD RESISTANCE: neoprene. GIVE LESS RESISTANCE: natural rubber. PVC. GIVE POOR RESISTANCE: polyethylene. PVA.
Hand protection	:	Gloves.
Eye protection	:	Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin and body protection	:	Complete suit protecting against chemicals.
Respiratory protection	:	Use a full face particle respirator type N99 (US) or type P2 (EN 143) respirator cartridges as a backup to engineering controls. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)
Thermal hazard protection	:	None.

9: Physical and chemical properties

Physical States	:	Solid
Appearance	:	White to light brown powder
Color	:	White to light brown
Odor	:	No data available
Odor threshold	:	No data available
pH	:	No data available
Melting Point	:	178°C
Freezing point	:	No data available
Boiling point	:	No data available
Flash Point	:	No data available
Flammability(solid, gas)	:	No data available
Vapor pressure	:	1.008 X 10^{-6} mPa
Relative vapour density at 20 °C	:	No data available
Relative density	:	2,012 g/cm^3 at 26 °C
Specific gravity / density	:	No data available
Molecular mass	:	528.1 g/mol
Solubility	:	In water 1.6 mg/l @ pH 5.7 and 7.6 mg/l @ pH 9
Partition Coefficient –Log Pow	:	No data available
Auto-ignition temperature	:	None below 400°C
Decomposition temperature	:	No data available
Viscosity Kinematic	:	No data available
Viscosity dynamic	:	No data available
Explosion limits	:	No data available

9.2 Other information

No data available

10: Stability and reactivity

10.1 Reactivity :

Stable under normal conditions

10.2 Chemical stability :

Stable under normal conditions

10.3 Possibility of hazardous reactions :

No dangerous reaction known under conditions of normal use

10.4 Conditions To Avoid :

Heat, flames and sparks. Extremes of temperature may decompose the products. Contact with incompatible material.

10.5 Incompatible materials :

Strong oxidizing or reducing agents

10.6 Hazardous decomposition products:

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx), Sulphur oxides, Hydrogen bromide gas, Hydrogen fluoride

11: Toxicological information

11.1 Information on toxicological effects:

Likely routes of exposure	:	Eye contact, Skin contact, Inhalation, Ingestion
Acute toxicity	:	Acute toxicity, oral Toxic if swallowed
LD_{50} Oral toxicity	:	>6500 mg/kg body weight (Rat)
LD_{50} Dermal toxicity	:	>5000 mg/kg body weight (Rabbit)
LC_{50} Inhalation toxicity	:	>5 mg/L Exposure time: 4 h (Rat)
Skin corrosion /irritation	:	Slightly irritating (Rabbit)
Serious eye damage/irritation	:	Slightly irritating (Rabbit)
Respiratory or skin sensitization	:	Non-Sensitizer (Mouse)

Germ cell mutagenicity	:	No data available
Carcinogenicity	:	None listed in OSHA, NTP, ACGIH or IARC
Reproductive toxicity	:	No data available
Specific target organ toxicity(single Exposure)	:	No data available
Specific target organ toxicity(repeated Exposure)	:	No data available
Aspiration hazard	:	No data available

12: Ecological information

12.1 Toxicity

Type	Kind	Test	Value
Birds	Mallard duck (*Anas platyrhynchos*)	LD_{50} (oral)	>2250 mg/kg
	Bobwhite quail (*Colinus virginianus*)	LD_{50} (oral)	>5620 mg/kg
Fish	Bluegill sunfish (*Lepomis macrochirus*)	LC_{50} (96 h)	1.2 mg/l
	Rainbow trout (*Oncorhynchus mykiss)*	LC_{50} (96 h)	1.3 mg/l
Aquatic invertebrates	*Daphnia magna*	EC_{50} (48h)	1.4 ppm
Aquatic plants	Algae (*Pseudokirchneriella subcapitata*)	EC_{50} (3d)	1.3 mg/l
Bees	-	LD_{50} (Oral contact)	>1000 ppm >100 µg/ bee
Worms	*Eisenia foetida*	LC_{50}	>1250 mg/kg

12.2 Persistency and degradability

Persistency and degradability	:	Not readily biodegradable

12.3 Bio-accumulative potential

Bio-accumulative potential	:	No data available

12.4 Mobility in soil

Ecology-soil	:	Mobility in soil is slow. K_{oc} 404-981

12.5 Other adverse effects No relevant data found.

13: Disposal Considerations

13.1. Waste treatment methods

Waste Disposal recommendations		Dispose of product concentrate and diluted product according to local waste regulation authority. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems. Containers can be rinsed and offered for recycling (authorized). Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in licensed landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14: Transport information

Marine transport(IMDG)

UN number	:	3077
Proper shipping name and description	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (2',6'-Dibromo-2-methyl-4'-trifluoromethoxy-4-trifluoromethyl-1,3-thiazole-5-carboxanilide)
Class	:	9
Packaging group	:	III

Hazard identification Number	:	--
Marine pollutant	:	Yes

Air Transport ICAO/IATA

UN number	3077
Proper shipping name and description	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (2',6'-Dibromo-2-methyl-4'-trifluoromethoxy-4-trifluoromethyl-1,3-thiazole-5-carboxanilide)
Class	9
Packaging group	III
Hazard identification Number	--
Environmental Hazard	Yes

Department of Transportation(DOT)

UN number	3077
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (2',6'-Dibromo-2-methyl-4'-trifluoromethoxy-4-trifluoromethyl-1,3-thiazole-5-carboxanilide)
Transport hazard class	9
Packaging group(DOT)	III
Poison inhalation Hazard	Yes
Hazard labels(DOT)	

15. Regulatory Information

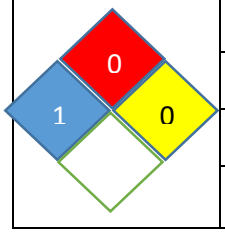
15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

The product is not affected by the Regulation (EC) No 1005/2009 of the European Parliament and of the Council of 16 September 2009 on substances that deplete the ozone layer.

Product classification according to Annex I of Directive 2012/18/EU (SEVESO III): E1
The product is not affected by Regulation (EU) No 528/2012 concerning the making available on the market and use of biocidal products.
The product is not affected by the procedure established Regulation (EU) No 649/2012, concerning the export and import of dangerous chemicals.

16 : Other Information

Hazard Statements	:	H400: Very toxic to aquatic life H410 Very toxic to aquatic life with long lasting effects
Precautionary Statements		P273 - Avoid release to the environment P391 - Collect spillage P501 - Dispose of contents/ container to an approved waste disposal plant.

NFPA Label				
Diamond	Hazard		**Value**	Description
	Health		1	Slightly hazardous
	Flammability		0	Will not burn
	Instability		0	Stable
	Special			--

(NFPA, 2010)

Information in this SDS is from available published sources and is believed to be accurate. No warranty, express or implied, is made and NACL Industries Ltd assumes no liability resulting from the use of this SDS. The user must determine suitability of this information for his application.

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