



SAFETY DATA SHEET

Issue Date 09-Jan-2017

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Version 1

1. IDENTIFICATION

Product identifier

Product Name Vilify

Other means of identification

Product Code 83100-47-83979

Synonyms None

Registration Number(s) 83100-47-83979

Recommended use of the chemical and restrictions on use

Recommended Use Herbicide

Uses advised against Consumer use

Details of the supplier of the safety data sheet

Manufacturer Address

Rotam North America, Inc.
4900 Koger Blvd. Suite# 140
Greensboro, NC 27407
Website: msds@rotam.com

Emergency telephone number

Company Phone Number 1-866-927-6826 (toll free)
1-336-346-8802

Emergency Telephone CHEMTREC: 800-424-9300
CHEMTREC: 703-527-3887
POISON CONTROL CENTER: 800-222-1222
NPIC: 1-800-858-7378

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Serious eye damage/eye irritation	Category 2B
Skin sensitization	Category 1
Specific target organ toxicity (repeated exposure)	Category 2

Label elements

Emergency Overview

Warning

Hazard statements

Causes eye irritation
May cause an allergic skin reaction
May cause damage to organs through prolonged or repeated exposure

**Appearance** Opaque**Physical state** liquid**Odor** Mildly**Precautionary Statements - Prevention**

Wash face, hands and any exposed skin thoroughly after handling
 Contaminated work clothing should not be allowed out of the workplace
 Wear protective gloves/protective clothing/eye protection/face protection
 Do not breathe dust/fume/gas/mist/vapors/spray

Precautionary Statements - Response

Get medical advice/attention if you feel unwell
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 If eye irritation persists: Get medical advice/attention
 IF ON SKIN: Wash with plenty of soap and water
 If skin irritation or rash occurs: Get medical advice/attention
 Wash contaminated clothing before reuse

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Not applicable

Other Information

May be harmful if swallowed. Causes mild skin irritation. Very toxic to aquatic life with long lasting effects.

Unknown acute toxicity

0% of the mixture consists of ingredient(s) of unknown toxicity

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Not applicable

Mixture

Synonyms None.

Chemical Name	CAS No	Weight-%
Other ingredients	Proprietary	59.48
Metolachlor	51218-45-2	19.00
Atrazine	1912-24-9	18.61
Mesotrione	104206-82-8	2.44
Related active triazine compounds	Proprietary	0.48

If CAS number is "proprietary", the specific chemical identity and percentage of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of first aid measures

General advice	Call a poison control center or doctor for treatment advice. Have the product containers or label with you when calling a poison control center or doctor, or going for treatment.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison control center or doctor for treatment advice.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Wash contaminated clothing before reuse. If skin irritation persists, call a physician. Call a poison control center or doctor for treatment advice.
Inhalation	Move victim to fresh air. If breathing is irregular or stopped, administer artificial respiration. Call a physician or poison control center immediately. Call a poison control center or doctor for treatment advice.
Ingestion	Call a physician or poison control center immediately. Drink 1 or 2 glasses of water. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.
Self-protection of the first aider	Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Most important symptoms and effects, both acute and delayed

Symptoms	Redness. Repeated contact may cause allergic reactions in very susceptible persons. May cause redness and tearing of the eyes.
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Indication of any immediate medical attention and special treatment needed

Note to physicians	Treat symptomatically.
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5. FIRE-FIGHTING MEASURES**Suitable extinguishing media**

Dry chemical, CO₂, water spray or regular foam. Move containers from fire area if you can do it without risk. Dike fire-control water for later disposal. Water spray, fog or regular foam.

Unsuitable extinguishing media None.

Specific hazards arising from the chemical

Thermal decomposition can lead to release of irritating and toxic gases and vapors.

Hazardous combustion products Carbon oxides. Nitrogen oxides (NO_x). Oxides of sulfur.

Explosion data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Cool containers / tanks with water spray.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Evacuate personnel to safe areas. Ensure adequate ventilation, especially in confined areas. Use personal protective equipment as required. Keep people away from and upwind of spill/leak.

For emergency responders Use personal protection recommended in Section 8. Ventilate the area.

Environmental precautions

Environmental precautions Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Cover liquid spill with sand, earth or other non-combustible absorbent material. Sweep up and shovel into suitable containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Use personal protective equipment as required. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid contact with skin, eyes or clothing.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children. Keep away from food, drink and animal feeding stuffs. Keep in properly labeled containers.

Packaging materials Do not reuse container.

Incompatible materials Strong oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters**Exposure Guidelines**

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Atrazine 1912-24-9	TWA: 2 mg/m ³ inhalable fraction	-	TWA: 5 mg/m ³

NIOSH IDLH *Immediately Dangerous to Life or Health*

Appropriate engineering controls

Engineering Controls Ensure adequate ventilation, especially in confined areas. And. Showers. Eyewash stations. Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin and body protection Wear suitable protective clothing. Wear protective butyl rubber gloves. Protective shoes or boots.

Respiratory protection

Ensure adequate ventilation, especially in confined areas. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General Hygiene Considerations

When using do not eat, drink or smoke. Regular cleaning of equipment, work area and clothing is recommended. Avoid contact with skin, eyes or clothing. Wash hands thoroughly after handling. Keep away from food, drink and animal feeding stuffs. Wash contaminated clothing before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	liquid	Odor	Mildly
Appearance	Opaque	Odor threshold	No information available
Color	Off-white		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	3.32	solution (1 %)
Melting point / freezing point	No information available	
Boiling point / boiling range	No information available	
Flash point	> 100 °C / > 212 °F	Seta Closed Cup
Evaporation rate	No information available	
Flammability (solid, gas)	No information available	
Flammability Limit in Air		
Upper flammability limit:	No information available	
Lower flammability limit:	No information available	
Vapor pressure	~17 mmHg	@ 20 °C
Vapor density	No information available	
Relative density	1.07 g/cm ³	
Water solubility	dispersible	
Solubility in other solvents	No information available	
Partition coefficient	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Explosive properties	Not an explosive	
Oxidizing properties	Not applicable	

Other Information

Softening point	No information available
Molecular weight	No information available
VOC Content (%)	No information available
Density	No information available
Bulk density	No information available

10. STABILITY AND REACTIVITY

Reactivity

No data available

Chemical stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to avoid

Elevated Temperature. Storage near to reactive materials.

Incompatible materials

Strong oxidizing agents.

Hazardous Decomposition Products

Thermal decomposition can lead to release of irritating and toxic gases and vapors. Nitrogen oxides (NOx). Carbon oxides.

11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure****Product Information**

Acute Oral LD50 (rat): >2000 mg/kg
 Acute Dermal LD50 (rabbit): > 2000 mg/kg
 Eye Irritation (rabbit): Moderately irritating.
 Skin Irritation (rabbit): Mildly irritating.
 Inhalation LC50 (rat): >5.12 mg/L (4 HR)
 Skin Sensitization (guinea pig): Sensitizer

Inhalation

Based on available data, the classification criteria are not met.

Eye contact

Moderately irritating to the eyes.

Skin contact

May cause sensitization by skin contact. Substance may cause slight skin irritation.

Ingestion

May be harmful if swallowed.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Other ingredients	> 90 mL/kg (Rat)	-	-
Metolachlor 51218-45-2	>2000 mg/kg (rat)	>2000 mg/kg (rabbit)	>3.20 mg/L (rat)
Atrazine 1912-24-9	= 672 mg/kg (Rat)	> 5000 mg/kg (Rat) = 7500 mg/kg (Rabbit) > 2000 mg/kg (Rat)	= 5200 mg/m ³ (Rat) 4 h
Related active triazine compounds	= 1390 mg/kg (Rat)	> 1 g/kg (Rat)	= 1563 g/m ³ (Rat) 1 h

Information on toxicological effects**Symptoms**

Redness. May cause an allergic skin reaction. May cause redness and tearing of the eyes.

Delayed and immediate effects as well as chronic effects from short and long-term exposure**Sensitization**

May cause sensitization in susceptible persons.

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Carcinogenicity

Based on available data, the classification criteria are not met. The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Atrazine 1912-24-9	A3	Group 3	-	-

*ACGIH (American Conference of Governmental Industrial Hygienists)**A3 - Animal Carcinogen**IARC (International Agency for Research on Cancer)**Not classifiable as a human carcinogen***Reproductive toxicity**

Based on available data, the classification criteria are not met.

STOT - single exposure

Based on available data, the classification criteria are not met.

STOT - repeated exposure

Causes damage to organs through prolonged or repeated exposure.

Chronic toxicity

May cause adverse liver effects.

Target Organ Effects

Central nervous system, Eyes, liver, Respiratory system, Skin.

Aspiration hazard

Based on available data, the classification criteria are not met.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral)	3,611.00 mg/kg
ATEmix (dermal)	9,266.00 mg/kg
ATEmix (inhalation-dust/mist)	27.90 mg/l

12. ECOLOGICAL INFORMATION

Ecotoxicity

Very toxic to aquatic life with long lasting effects

This product is toxic to aquatic invertebrates. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning of equipment or disposing of equipment washwaters or rinsate.

59.47 % of the mixture consists of component(s) of unknown hazards to the aquatic environment

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Metolachlor 51218-45-2	Green algae 96-hr EC50 = 0.4 mg/L	Bluegill 96-hr EC50 = 10 mg/L	25.1: 48 h Daphnia magna mg/L LC50 4.25: 48 h Daphnia magna mg/L EC50 13 - 18.4: 48 h Daphnia magna mg/L EC50 Static
Atrazine 1912-24-9	0.03: 72 h Desmodosmus subspicatus mg/L EC50 0.014 - 0.027: 96 h Desmodosmus subspicatus mg/L EC50 semi-static 0.13: 96 h Pseudokirchneriella subcapitata mg/L EC50 0.0929: 72 h Pseudokirchneriella subcapitata mg/L EC50 semi-static 0.0096 - 0.07: 72 h Pseudokirchneriella subcapitata mg/L EC50 static 0.072: 72 h Desmodosmus subspicatus mg/L EC50 static 0.2: 72 h Pseudokirchneriella subcapitata mg/L EC50 0.004: 96 h Pseudokirchneriella subcapitata mg/L EC50 static	4.5 - 11: 96 h Oncorhynchus mykiss mg/L LC50 3 - 6.75: 96 h Oncorhynchus mykiss mg/L LC50 semi-static 5.4 - 8.4: 96 h Lepomis macrochirus mg/L LC50 static 23.999: 96 h Lepomis macrochirus mg/L LC50 semi-static 4.1: 96 h Pimephales promelas mg/L LC50 static 4.3: 96 h Poecilia reticulata mg/L LC50 static 3 - 6.75: 96 h Oncorhynchus mykiss mg/L LC50 static 8: 96 h Lepomis macrochirus mg/L LC50 flow-through 16: 96 h Lepomis macrochirus mg/L LC50 19: 96 h Cyprinus carpio mg/L LC50 static 15.7 - 20.2: 96 h Cyprinus carpio mg/L LC50 semi-static	5.2 - 8.1: 48 h Daphnia magna mg/L EC50 Static

Persistence and degradability

Not readily biodegradable.

Bioaccumulation

Not likely to bioaccumulate.

Chemical Name	Partition coefficient
Metolachlor 51218-45-2	2.9
Atrazine 1912-24-9	2.59

Other adverse effects

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT)

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes

Pesticide wastes may be acutely hazardous. Improper disposal is a violation of federal law. Disposal should be in accordance with applicable regional, national and local laws and regulations. Contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance on proper

disposal of waste product.

Contaminated packaging

Disposal should be in accordance with applicable regional, national and local laws and regulations. Consult product label for additional information. Do not reuse container.

14. TRANSPORT INFORMATION

DOT Not regulated

TDG Not regulated

IATA

UN/ID no UN3082
Proper shipping name Environmentally hazardous substance, liquid, n.o.s.
Hazard Class 9
Packing Group III
ERG Code 9L
Special Provisions A97, A158, A197
Description UN3082, Environmentally hazardous substance, liquid, n.o.s. (Mesotrione, Atrazine), 9, III

IMDG

UN/ID no UN3082
Proper shipping name Environmentally hazardous substance, liquid, n.o.s.
Hazard Class 9
Packing Group III
EmS-No F-A, S-F
Special Provisions 274, 335
Description UN3082, Environmentally hazardous substance, liquid, n.o.s. (Mesotrione, Atrazine), 9, III;
 Marine Pollutant

15. REGULATORY INFORMATION

International Inventories

TSCA Complies
DSL/NDSL Complies
EINECS/ELINCS Complies
IECSC Complies
KECL Complies
PICCS Complies
AICS Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	SARA 313 - Threshold Values %
Atrazine - 1912-24-9	1.0

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	Yes
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Metolachlor 51218-45-2	X	-	-
Atrazine 1912-24-9	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number 83100-47

EPA Statement

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

Difference between SDS and EPA Pesticide label

CAUTION: Causes moderate eye irritation. Harmful if swallowed. Avoid contact with skin, eyes, or clothing. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

NFPA	Health hazards 2	Flammability 0	Instability 0	Physical and Chemical Properties -
HMIS	Health hazards 2*	Flammability 0	Physical hazards 0	Personal protection X
<i>Chronic Hazard Star Legend</i>	* = Chronic Health Hazard			

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Revision Note
 No information available

Disclaimer

The information provided in this Material 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 a 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.

End of Safety Data Sheet

