SAFETY DATA SHEET
REATOR 360 CS

SDS # : FO000594-A
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Version 2.02

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name REATOR 360 CS

Other means of identification

Product Code(s) FO000594-A

Synonyms Clomazone (F57020): 2-(2-chlorobenzyl)-4,4-dimethyl-1,2-oxazolidin-3-one (IUPAC name); 2-[(2-chlorophenyl)methyl]-4,4-dimethyl-3-isoxazolidinone (CAS Name)

Active Ingredient(s) Clomazone

Chemical Family Triazolinones

Recommended use of the chemical and restrictions on use

Recommended Use: Herbicide

Restrictions on Use: Use as recommended by the label.

Supplier Address

FMC Corporation
2929 Walnut Street
Philadelphia, PA 19104
(215) 299-6000 (General Information)
SDS-Info@fmc.com (E-Mail General Information)

Emergency telephone number

Medical Emergencies :
1 800 / 331-3148 (U.S.A. & Canada)
1 651 / 632-6793 (All Other Countries - Collect)

For leak, fire, spill or accident emergencies, call:
1 800 / 424-9300 (CHEMTREC - U.S.A.)
1 703 / 741-5970 (CHEMTREC - International)
1 703 / 527-3887 (CHEMTREC - Alternate)

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

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

Skin sensitization	Category 1B

GHS Label elements, including precautionary statements

EMERGENCY OVERVIEW

Warning

Hazard Statements
H317 - May cause an allergic skin reaction

Precautionary Statements - Prevention
P272 - Contaminated work clothing should not be allowed out of the workplace
P280 - Wear protective gloves

Precautionary Statements - Response
P321 - Specific treatment (see supplemental first aid instructions on label)
P302 + P352 - IF ON SKIN: Wash with plenty of water and soap
P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention
P362 + P364 - Take off all contaminated clothing and wash it before reuse
P363 - Wash contaminated clothing before reuse

Precautionary Statements - Disposal
P501 - Dispose of contents/container according to label directions

Hazards not otherwise classified (HNOC)
No hazards not otherwise classified were identified.

Other Information
Very toxic to aquatic life with long lasting effects.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Family Triazolinones.

Chemical name	CAS-No	Weight %
Clomazone	81777-89-1	31
Sodium Nitrate	7631-99-4	1-5
Calcium chloride	10043-52-4	1-5
1,6-hexanediamine	124-09-4	1-5

Synonyms are provided in Section 1.

4. FIRST AID MEASURES

Eye Contact Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for further treatment advice.

Skin Contact Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for further treatment advice.

Inhalation Move to fresh air. If person is not breathing, contact emergency medical services, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or

doctor for further treatment advice.

Ingestion Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed Symptoms of overexposure include decreased activity, tearing eyes, bleeding from the nose and incoordination.

Indication of immediate medical attention and special treatment needed, if necessary Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Small Fire Dry chemical. Carbon dioxide (CO_2).

Large Fire Water spray. Foam.

Unsuitable extinguishing media Avoid heavy hose streams.

Specific Hazards Arising from the Chemical Not flammable

Explosion data
Sensitivity to Mechanical Impact No information available.
Sensitivity to Static Discharge No information available.

Protective equipment and precautions for firefighters As in any fire, wear self-contained breathing apparatus and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Isolate and post spill area. Remove all sources of ignition. Wear suitable protective clothing, gloves and eye/face protection. For personal protection see section 8.

Other For further clean-up instructions, call FMC Emergency Hotline number listed in Section 1 "Product and Company Identification" above.

Environmental Precautions Keep people and animals away from and upwind of spill/leak. Keep material out of lakes, streams, ponds, and sewer drains.

Methods for Containment Dike to prevent runoff. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

Methods for cleaning up Clean and neutralize spill area, tools and equipment by washing with water and soap. Absorb rinsate and add to the collected waste. Waste must be classified and labeled prior to recycling or disposal. Dispose of waste as indicated in Section 13.

7. HANDLING AND STORAGE

Handling Do not contaminate other pesticides, fertilizers, water, food, or feed by storage or disposal.

Storage Keep in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Keep out of reach of children and animals. Keep/store only in original container.

Packaging material Must only be kept in original packaging.

Incompatible products None known

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Chemical name	ACGIH TLV	OSHA PEL	NIOSH	Mexico
1,6-hexanediamine (124-09-4)	TWA: 0.5 ppm	-	-	Mexico: TWA 0.5 ppm
Chemical name	**British Columbia**	**Quebec**	**Ontario TWAEV**	**Alberta**
Calcium chloride (10043-52-4)	-	-	TWA: 5 mg/m^3	-
1,6-hexanediamine (124-09-4)	TWA: 0.5 ppm	TWA: 0.5 ppm TWA: 2.3 mg/m^3	TWA: 0.5 ppm	TWA: 0.5 ppm TWA: 2.4 mg/m^3

Appropriate engineering controls

Engineering measures Apply technical measures to comply with the occupational exposure limits. When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment.

Individual protection measures, such as personal protective equipment

Eye/Face Protection For dust, splash, mist or spray exposure, wear chemical protective goggles.

Skin and Body Protection Wear long-sleeved shirt, long pants, socks, and shoes.

Hand Protection Use protective gloves made of chemical materials such as nitrile or neoprene. Wash the outside of gloves with soap and water before reuse. Check regularly for leaks.

Respiratory Protection For dust, splash, mist or spray exposures, wear a filtering mask.

Hygiene measures Clean water should be available for washing in case of eye or skin contamination. Wash skin prior to eating, drinking, chewing gum or using tobacco. Shower or bathe at the end of working. Remove and wash contaminated clothing before re-use. Launder work clothing separately from regular household laundry.

General information If the product is used in mixtures, it is recommended that you contact the appropriate protective equipment suppliers. These recommendations apply to the product as supplied

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance Liquid suspension
Physical State Liquid
Color Green
Odor Slight Aromatic
Odor threshold No information available
pH 6.5 @ 20°C
Melting point/freezing point Not applicable
Boiling Point/Range No information available
Flash point > 94 °C / > 201 °F Tag 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 No information available
Vapor density No information available
Relative density 1159.2 kg/m^3

Specific gravity	No information available
Water solubility	Soluble in water
Solubility in other solvents	No information available
Partition coefficient	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available
Viscosity, kinematic	No information available
Viscosity, dynamic	No information available
Explosive properties	No information available
Oxidizing properties	No information available
Molecular weight	No information available
Bulk density	No information available

10. STABILITY AND REACTIVITY

Reactivity None under normal use conditions

Chemical Stability Stable.

Possibility of Hazardous Reactions None under normal processing.

Hazardous polymerization Hazardous polymerization does not occur.

Conditions to avoid Heat, flames and sparks

Incompatible materials None known.

Hazardous Decomposition Products Carbon oxides (COx), Nitrogen oxides (NOx), Chlorine, Hydrogen chloride.

11. TOXICOLOGICAL INFORMATION

Product Information

LD50 Oral	> 5000 mg/kg (rat)
LD50 Dermal	> 5000 mg/kg (rat)
LC50 Inhalation (dust)	> 3.86 mg/L 4 hr - Maximum attainable concentration (zero mortality)

Serious eye damage/eye irritation	Non-irritating.
Skin corrosion/irritation	Non-irritating.
Sensitization	Mild sensitizer

Chemical name	LD50 Oral	LD50 Dermal	LC50 Inhalation (vapor)
Clomazone (81777-89-1)	1369 mg/kg	>2000 mg/kg	4 h LC50 = 4,8 mg/L
Sodium Nitrate (7631-99-4)	= 1267 mg/kg (Rat)		
Calcium chloride (10043-52-4)	= 1000 mg/kg (Rat)	> 5000 mg/kg (Rabbit)	
1,6-hexanediamine (124-09-4)	= 750 mg/kg (Rat)	= 1110 mg/kg (Rabbit)	

Information on toxicological effects

Symptoms Large dosages of clomazone ingested by laboratory animals produced signs of toxicity including ataxia, decreased activity, oral discharge, lacrimation, bloody tears, and nasal discharge.

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

Chronic toxicity Clomazone: Long-term exposure caused slight liver weight increase and hepatocyte enlargement in animal studies.

Mutagenicity Clomazone: Not genotoxic in animal studies

Carcinogenicity Clomazone: No evidence of carcinogenicity from animal studies.

Neurological effects Clomazone: Not neurotoxic.

Reproductive toxicity Clomazone: No toxicity to reproduction in animal studies.

Developmental toxicity Clomazone: Not teratogenic in animal studies.

STOT - single exposure None under normal use conditions.
STOT - repeated exposure None under normal use conditions.
Target organ effects Clomazone: Liver

Neurological effects Clomazone: Not neurotoxic.

Aspiration hazard No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

LC_{50} Fish (Danio rerio) (96h):> 100 mg/L (OECD 203).

EC_{50} (Daphnia magna) (48h):> 100 mg/L (OECD 202).

Algae (Pseudokirchneriella subcapitata) = 72-hour EC_{50} (growth rate) = 58.9 mg/L (OECD 201)

Earthworms (Eisenia foetida) = 14 day LC_{50} >1000 mg/L (OECD 207)

Bees (Apis mellifera) = 48-hour LD_{50} >313.9 µg/bee (OECD 214)

Birds: LD_{50}:> 2,000 mg/kg body weight.

Clomazone (81777-89-1)				
Active Ingredient(s)	Duration	Species	Value	Units
Clomazone	72 h EC50	Algae	0.136	mg/L
	48 h EC50	Crustacea	12.7	mg/L
	96 h LC50	Fish	15.5	mg/L
	21 d NOEC	Fish	2.30	mg/L
	21 d NOEC	Crustacea	2.2	mg/L
	96 h NOEC	Algae	0.05	mg/L

Chemical name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
Calcium chloride 10043-52-4		96 h LC50: = 10650 mg/L (Lepomis macrochirus) static	48 h LC50: 2280000 - 3948000 µg/L (Daphnia magna)
1,6-hexanediamine 124-09-4	96 h EC50: = 14.8 mg/L (Pseudokirchneriella subcapitata) 72 h EC50: = 15 mg/L (Pseudokirchneriella subcapitata)	96 h LC50: = 1825 mg/L (Pimephales promelas) static 96 h LC50: = 62 mg/L (Leuciscus idus) static 96 h LC50: > 56 mg/L (Lepomis macrochirus) static	48 h EC50: = 23.4 mg/L (Daphnia magna)
Sodium Hydroxide 1310-73-2		96 h LC50: = 45.4 mg/L (Oncorhynchus mykiss) static	
Acetic Acid 64-19-7		96 h LC50: = 75 mg/L (Lepomis macrochirus) static 96 h LC50: = 79 mg/L (Pimephales promelas) static	24 h EC50: = 47 mg/L (Daphnia magna) 48 h EC50: = 65 mg/L (Daphnia magna) Static
Potassium chloride 7447-40-7	72 h EC50: = 2500 mg/L (Desmodesmus subspicatus)	96 h LC50: 750 - 1020 mg/L (Pimephales promelas) static 96 h LC50: = 1060 mg/L (Lepomis	48 h EC50: = 825 mg/L (Daphnia magna) 48 h EC50: = 83 mg/L (Daphnia magna) Static

		macrochirus) static	
Sodium Nitrate 7631-99-4		96 h LC50: 994.4 - 1107 mg/L (Oncorhynchus mykiss) static 96 h LC50: = 2000 mg/L (Lepomis macrochirus) static	
Sodium chloride 7647-14-5		96 h LC50: 4747 - 7824 mg/L (Oncorhynchus mykiss) flow-through 96 h LC50: 5560 - 6080 mg/L (Lepomis macrochirus) flow-through 96 h LC50: 6020 - 7070 mg/L (Pimephales promelas) static 96 h LC50: 6420 - 6700 mg/L (Pimephales promelas) static 96 h LC50: = 12946 mg/L (Lepomis macrochirus) static 96 h LC50: = 7050 mg/L (Pimephales promelas) semi-static	48 h EC50: 340.7 - 469.2 mg/L (Daphnia magna) Static 48 h EC50: = 1000 mg/L (Daphnia magna)
Clomazone 81777-89-1	EC50 = 0.136 mg/L		48 h EC50 = 5.2 mg/L

Persistence and degradability Clomazone: Moderately persistent. Does not readily hydrolyze. Not readily biodegradable.

Bioaccumulation Clomazone: The substance does not have a potential for bioconcentration.

Mobility Clomazone: Moderately mobile.

13. DISPOSAL CONSIDERATIONS

Waste disposal methods Improper disposal of excess pesticide, spray mixture, or rinsate is prohibited. If these wastes cannot be disposed of by use according to label instructions, contact appropriate disposal authorities for guidance. Proper personal protective equipment, as described in Sections 7 and 8, must be worn while handling materials for waste disposal.

Contaminated containers and packages Containers must be disposed of in accordance with local, state and federal regulations. Refer to the product label for container disposal instructions.

14. TRANSPORT INFORMATION

DOT NOT REGULATED

TDG NOT REGULATED

ICAO/IATA NOT REGULATED

IMDG/IMO NOT REGULATED

15. REGULATORY INFORMATION

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

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

Clean Water Act
This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42):

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Acetic Acid 64-19-7	5000 lb			X
Sodium Hydroxide 1310-73-2	1000 lb			X

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302):

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Acetic Acid 64-19-7	5000 lb 2270 kg	
Sodium Hydroxide 1310-73-2	1000 lb 454 kg	

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
Sodium Nitrate 7631-99-4		X	X
1,6-hexanediamine 124-09-4	X	X	

International Inventories

Chemical name	TSCA (United States)	DSL (Canada)	EINECS/ELINCS (Europe)	ENCS (Japan)	China (IECSC)	KECL (Korea)	PICCS (Philippines)	AICS (Australia)
Clomazone 81777-89-1					X	X		
Sodium Nitrate 7631-99-4	X	X	X	X	X	X	X	X
Calcium chloride 10043-52-4	X	X	X	X	X	X	X	X
1,6-hexanediamine 124-09-4	X	X	X	X	X	X	X	X

CANADA
Not applicable

16. OTHER INFORMATION

NFPA	**Health Hazards** 2	**Flammability** 1	**Instability** 0	**Special Hazards** -
HMIS	**Health Hazards** 2*	**Flammability** 1	**Physical hazard** 0	**Personal Protection** X

**Indicates a chronic health hazard.*

NFPA/HMIS Ratings Legend Severe = 4; Serious = 3; Moderate = 2; Slight = 1; Minimal = 0

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Reason for revision: SDS sections updated

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Prepared By:

FMC Corporation

End of Safety Data Sheet