SAFETY DATA SHEET

CHLORSULFURON 750 g/kg DF

This safety data sheet complies with the requirements of:
Regulation (EC) No. 453/2010 and Regulation (EC) No. 1272/2008

SDS # : FO002490-A
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Version 1

Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product Code(s) FO002490-A

Product Name CHLORSULFURON 750 g/kg DF

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

Recommended Use: Herbicide

Restrictions on Use: Use as recommended by the label.

1.3. Details of the supplier of the safety data sheet

Supplier

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

For further information, please contact:

Contact point No information available

1.4. Emergency telephone number

Emergency telephone

Medical Emergencies:
1 800 / 331-3148 (ProPharma Group - U.S.A. & Canada)
1 651 / 632-6793 (ProPharma Group - 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)

Section 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture *Regulation (EC) No 1272/2008*

Acute aquatic toxicity	Category 1
Chronic aquatic toxicity	Category 1

2.2. Label elements

Hazard pictograms

Signal Word
WARNING

Hazard Statements
H410 - Very toxic to aquatic life with long lasting effects
EUH401 - To avoid risks to human health and the environment, comply with the instructions for use

Precautionary Statements
P273 - Avoid release to the environment
P391 - Collect spillage
P501: Dispose of contents/container as hazardous waste.

2.3. Other hazards
Excessive dust formation may pose a dust explosion hazard. None of the ingredients in the product meets the criteria for being PBT or vPvB.

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

The product is a mixture, not a substance.

3.2 Mixtures

Chemical name	EC-No	CAS-No	Weight %	Classification according to Regulation (EC) No. 1272/2008 [CLP]	REACH registration number
Chlorsulfuron	265-268-5	64902-72-3	75	Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410) M(Chronic)=100 M=1000	No data available
Formaldehyde condensate	-	68425-94-5	1-5	Eye Irrit.2; H319	No data available

Section 4: FIRST AID MEASURES

4.1. Description of first aid measures

Eye Contact Rinse thoroughly with plenty of water, also under the eyelids. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. Get medical attention if irritation develops and persists.

Skin Contact Immediately flush with plenty of water while removing contaminated clothing and/or shoes, and thoroughly wash with soap and water. Get medical attention immediately if symptoms occur.

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 Drink plenty of water. Do not induce vomiting or give anything by mouth to an unconscious person. If vomiting does occur, rinse mouth and drink fluids again. Call a physician or poison control center immediately.

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

Most important symptoms and effects, both acute and delayed	Generally, sulphonylurea herbicides cause lethargy, confusion, dizziness, seizures and coma on ingestion.

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

Indication of immediate medical attention and special treatment needed, if necessary	Notes to physician: A specific antidote for exposure to this material is not known. Gastric lavage and/or the administration of activated charcoal can be considered. After decontamination, treatment should be directed at the control of symptoms and the clinical condition.

Section 5: FIRE FIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media
Dry chemical, CO2 or water spray.

Unsuitable extinguishing media
Avoid heavy hose streams.

5.2. Special hazards arising from the substance or mixture
The essential breakdown products are volatile, toxic, irritant and inflammable compounds such as nitrogen oxides, hydrogen chloride, carbon monoxide, carbon dioxide and various chlorinated organic compounds.

5.3. Advice for firefighters
Use water spray to cool fire exposed surfaces and protect personnel. Approach fire from upwind to avoid hazardous vapours and toxic decomposition products. Dike to prevent runoff. Wear self-contained breathing apparatus and protective suit.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Personal Precautions
Isolate and post spill area. Remove all sources of ignition. Wear protective gloves/clothing and eye/face protection.

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

For emergency responders
Use personal protection recommended in Section 8.

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

6.3. Methods and material for containment and cleaning up

Methods for Containment	Use non-sparking tools and equipment. If appropriate, surface water drains should be covered. Minor spills on the floor or other impervious surface should immediately be swept up or preferably vacuumed up using equipment with high efficiency final filter. Transfer to suitable containers. Clean area with detergent and much water. Absorb wash liquid onto inert absorbent such as universal binder, Fuller's earth, bentonite or other absorbent clay and collect in suitable containers. The used containers should be properly closed and labelled.
Methods for cleaning up	Pick up and transfer to properly labeled containers.

6.4. Reference to other sections
See Section 8 "Exposure Controls/Personal Protection" for specific details. See section 13 for disposal information.

Section 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Avoid dust formation. Wash thoroughly after handling. Like most organic powders, the substance can form explosive mixtures with air. Avoid dust formation and take precautionary measures against static discharge. Use explosion protected equipment. Keep away from sources of ignition and protect from exposure to fire and heat.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage
The product is stable under normal conditions of warehouse storage. Protect from moisture. Protect against extremes of heat and cold. Keep in properly labeled containers. 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.

7.3. Specific end use(s)

Specific Use(s)
The product is meant for the production of registered pesticides which may only be used for the applications for which they are registered.

Risk Management Methods (RMM)
The information required is contained in this Safety Data Sheet.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

To the best of our knowledge, personal exposure limits have not been established for any of the ingredients in this product. However, personal exposure limits defined by local regulations may exist and must be observed. An exposure limit of 10 mg/m^3 (8-hr TWA) is recommended for other sulphonylureas.

Derived No Effect Level (DNEL)	Chlorsulfuron:
dermal	0.43 mg/kg bw/day
Predicted No Effect Concentration (PNEC)	Chlorsulfuron:
Freshwater	0.004 µg/l

8.2. Exposure 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.

Personal protective equipment

Eye/Face Protection — For dust, splash, mist or spray exposure, wear chemical protective goggles. Maintain eye wash fountain and quick-drench facilities in work area.

Hand Protection — Wear chemical protective gloves made of materials such as nitrile or neoprene.

Skin and Body Protection — Wear appropriate chemical resistant clothing to prevent skin contact depending on the extent of exposure. During most normal work situations where exposure to the material cannot be avoided for a limited time span, waterproof pants and apron of chemical resistant material or coveralls of polyethylene (PE) will be sufficient. Coveralls of PE must be discarded after use if contaminated. In cases of appreciable or prolonged exposure,

coveralls of barrier laminate may be required.

Respiratory Protection The product does not automatically present an airborne exposure concern during normal handling. In the event of an accidental discharge of the material which produces a heavy vapour or mist, workers should put on officially approved respiratory protection equipment with a universal filter type including particle filter.

Environmental exposure controls Do not release to the environment.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical State	Solid
Appearance	Granules
Odor	Odorless
Color	Off-white
Odor threshold	No information available
pH	5.57 (21 °C) (1% dispersion in water)
Melting point/freezing point	No information available
Boiling Point/Range	No information available
Flash point	No information available
Evaporation Rate	No information available
Flammability (solid, gas)	No information available
No information available	
Flammability Limit in Air	
Upper flammability limit:	No information available
Lower flammability limit:	No information available
Vapor pressure	Chlorsulfuron : 6.1 x 10^{-4} Pa (25°C)
Vapor density	No information available
Specific gravity	No information available
Water solubility	Chlorsulfuron: 0.876 g/l (pH 5) 12.5 g/l (pH 7) 134 g/l (pH 9)
Solubility in other solvents	Chlorsulfuron: acetone 37 g/l n-hexane 0.0024 g/l
Partition coefficient	Chlorsulfuron : log Kow = -0.99 at pH 7
Autoignition temperature	No information available
Decomposition temperature	No information available
Viscosity, kinematic	No information available
Viscosity, dynamic	No information available
Explosive properties	Not explosive
Oxidizing properties	Non-oxidizing

9.2. Other information

Softening point	No information available
Molecular weight	No information available
VOC content (%)	No information available
Relative density	No information available
Bulk density	No information available
K_{st}	No information available

Section 10: STABILITY AND REACTIVITY

10.1. Reactivity

To our knowledge, the product has no special reactivities.

10.2. Chemical stability

Stable under normal conditions.

Explosion data
Sensitivity to Mechanical Impact None known.

Sensitivity to Static Discharge None known.

10.3. Possibility of hazardous reactions

Hazardous polymerization
Hazardous polymerization does not occur.

Hazardous reactions
None under normal processing.

10.4. Conditions to avoid

Heat, flames and sparks.

10.5. Incompatible materials

Strong acids, Strong bases, Strong oxidizing agents.

10.6. Hazardous decomposition products

Nitrogen oxides (NOx), Carbon oxides (COx), Hydrogen chloride, Sulfur oxides, various chlorinated organic compounds.

Section 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute toxicity

Product Information
Product does not present an acute toxicity hazard based on known or supplied information.

LD50 Oral	5000 mg/kg (rat) (Method OPPTS 830.1100)
LD50 Dermal	> 5000 mg/kg (rat) (Method OPPTS 830.1200)
LC50 Inhalation	> 2.06 mg/L 4 hr (rat) (Method OPPTS 830.1300)

Skin corrosion/irritation	Slightly irritating. (Method OPPTS 830.2500).
Serious eye damage/eye irritation	Mildly irritating. (Method OPPTS 830.2400).
Sensitization	Not a skin sensitizer (Method OPPTS 830.2600)
Mutagenicity	The product contains no ingredients known to be mutagenic.
Carcinogenicity	The product contains no ingredients known to be carcinogenic.

Reproductive toxicity	The product contains no ingredients known to have adverse effects on reproduction.
STOT - single exposure	No specific effects after single exposure have been observed.
STOT - repeated exposure	Chlorsulfuron: NOAEL: 161 - 217 mg/kg bw/day, rat, 90-days.
Symptoms	Primarily irritation. To our knowledge, adverse effects in humans have not been reported. The product is not expected to cause severe adverse effects to health, but adverse health effects cannot be excluded in case of massive exposure. Generally, sulphonylurea herbicides cause lethargy, confusion, dizziness, seizures and coma on ingestion.
Aspiration hazard	The product does not present an aspiration pneumonia hazard.

Section 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity	Chlorsulfuron: Plants, Duckweed (Lemna minor), EC50: 0.35 µg/l Birds, Mallard duck (Anas platyrhynchos), dietary LC50: > 5000 ppm

Insects, Bees (Apis mellifera), LD50: 25 µg/bee

.

Chemical name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
Chlorsulfuron	Green algae (Pseudokirchneriella subcapitata) EC50: 0.055 µg/l Cyanobacteria (Anabaena flos-aquae) EC50: 0.61 mg/l	Rainbow trout (Salmo gairdneri) 96-h LC50: > 250 mg/l NOEC: 32 mg/l	Daphnids (Daphnia magna),48-h EC50: > 370 mg/l NOEC: 20 mg/l

12.2. Persistence and degradability

Chlorsulfuron: Expected to persist in the environment. Primary degradation half-lives vary primarily with pH, from a few weeks to over one year in soil at high pH. The substance has the potential to leak to groundwater. Remains in soil may adversely influence plant reproduction.
The product contains minor amounts of not readily biodegradable components, which may not be degradable in waste water treatment plants.

12.3. Bioaccumulative potential

See section 9 for n-octanol/water partition coefficient.
Chlorsulfuron: Does not bioaccumulate.

12.4. Mobility in soil

Mobility in soil
Chlorsulfuron: Moderately mobile in soil at low pH, but very mobile at high pH.

12.5. Results of PBT and vPvB assessment

None of the ingredients in the product meets the criteria for being PBT or vPvB.

12.6. Other adverse effects

None known.

Section 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from residues / unused products — Dispose of in accordance with the European Directives on waste and hazardous waste. 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 Packaging — Where possible recycling is preferred to disposal or incineration. Containers must be disposed of in accordance with local, state and federal regulations. Refer to the product label for container disposal instructions. Empty containers should be taken to an approved waste handling site for recycling or disposal.

Section 14: TRANSPORT INFORMATION

IMDG/IMO

14.1 UN/ID no 3077
14.2 Proper Shipping Name Environmentally hazardous substance, solid, n.o.s. (Chlorsulfuron)
14.3 Hazard class 9
14.4 Packing Group III

14.5 Marine Pollutant	Yes
Environmental Hazard	Marine Pollutant
14.6 Special Provisions	Do not discharge to the environment.
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	The product should not be transported in bulk by ship.

RID

14.1 UN/ID no	3077
14.2 Proper Shipping Name	Environmentally hazardous substance, solid, n.o.s. (chlorsulfuron)
14.3 Hazard class	9
14.4 Packing Group	III
14.5 Environmental Hazard	Marine Pollutant
14.6 Special Provisions	Do not discharge to the environment.

ADR/RID

14.1 UN/ID no	3077
14.2 Proper Shipping Name	Environmentally hazardous substance, solid, n.o.s. (chlorsulfuron)
14.3 Hazard class	9
14.4 Packing Group	III
14.5 Environmental Hazard	Marine Pollutant
14.6 Special Provisions	Do not discharge to the environment.

ICAO/IATA

14.1 UN/ID no	3077
14.2 Proper Shipping Name	Environmentally hazardous substance, solid, n.o.s. (chlorsulfuron)
14.3 Hazard class	9
14.4 Packing Group	III
14.5 Environmental Hazard	Marine Pollutant
14.6 Special Provisions	Do not discharge to the environment.

Section 15: REGULATORY INFORMATION

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

WGK Classification
It must be excluded that pesticides get into water. They must therefore be stored in accordance with the safety requirements as they apply to substances of the water hazard class (WGK) 3 (this makes it unnecessary to classify plant protection products in WGK and label them accordingly).

European Union

Authorizations and/or restrictions on use:
This product does not contain substances subject to authorization (Regulation (EC) No. 1907/2006 (REACH), Annex XIV)
This product does not contain substances subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

Persistent Organic Pollutants
Not Applicable

Dangerous substance category per Seveso Directive (2012/18/EU)
DANGEROUS FOR THE ENVIRONMENT

Ozone-depleting substances (ODS) regulation (EC) 1005/2009
Not Applicable

International Inventories

Chemical name	TSCA	DSL	EINECS/ELINC	ENCS	China	KECL (Korea)	PICCS	AICS

	(United States)	(Canada)	S (Europe)	(Japan)	(IECSC)		(Philippines)	(Australia)
Chlorsulfuron 64902-72-3			X		X			X
Formaldehyde condensate 68425-94-5				X				

15.2. Chemical safety assessment

A chemical safety assessment is not required to be included for this product.

Section 16: OTHER INFORMATION

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of R-phrases referred to under sections 2 and 3
No information available

Legend

ADR:	European Agreement concerning the International Carriage of Dangerous Goods by Road
CAS:	CAS (Chemical Abstracts Service)
Ceiling:	Maximum limit value:
DNEL:	Derived No Effect Level (DNEL)
EINECS:	EINECS (European Inventory of Existing Chemical Substances)
GHS:	Globally Harmonized System (GHS)
IATA:	International Air Transport Association (IATA)
ICAO:	International Civil Aviation Organization
IMDG:	International Maritime Dangerous Goods (IMDG)
LC50:	LC50 (lethal concentration)
LD50:	LD50 (lethal dose)
PBT:	Persistent, Bioaccumulative, and Toxic (PBT) Chemicals
RID:	Regulations Concerning the International Transport of Dangerous Goods by Rail
STEL:	Short term exposure limit
SVHC	SVHC: Substances of Very High Concern for Authorization:
TWA:	time weighted average
vPvB:	very Persistent and very Bioaccumulative
Revision date:	2018-09-10
Reason for revision:	Initial Release.

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End of Safety Data Sheet