Section 1. Product and Company Identification

Product Name Hydrocortisone
CAS Number 50-23-7

Parchem - fine & specialty chemicals
415 Huguenot Street
New Rochelle, NY 10801
(914) 654-6800 **(914) 654-6899**
parchem.com **info@parchem.com**

EMERGENCY RESPONSE NUMBER
CHEMTEL
Toll Free US & Canada: 1 (800) 255-3924
All other Origins: 1 (813) 248-0585
Collect Calls Accepted

Section 2. Hazards Identification

Classification of the substance or mixture
GHS Classification
Reproductive Toxicity: Category 2

GHS Label Elements

Pictograms:

Signal word: Warning

Hazard and precautionary statements
Hazard Statements
H361d Suspected of damaging the unborn child
May form combustible dust concentrations in air
Precautionary Statements
P201 Obtain special instructions before use
P202 Do not handle until all safety precautions have been read and understood
P281 Use personal protective equipment as required
P308 + P313 -IF exposed or concerned: Get medical attention/advice
P405 Store locked up

US OSHA Specific Classification
Physical Hazard: Combustible Dust

EU Classification
EU Indication of Danger: Toxic to Reproduction: Category 3
EU Risk Phrases: R63 - Possible risk of harm to the unborn child

Supplemental Hazards: Very strong dust explosion characteristic.
Very high sensitivity to ignition.

Other Hazards
Australian Hazard Classification (NOHSC): Hazardous Substance. Non-Dangerous Goods.

Note: This document has been prepared in accordance with standards for workplace safety, which requires the inclusion of all known hazards of the product or its ingredients regardless of the potential risk. The precautionary statements and warning included may not apply in all cases. Your needs may vary depending upon the potential for exposure in your workplace.

Section 3. Composition / Information on Ingredients

Common Name	Hydrocortisone
Synonym(s)	Hydrocortisone Base
Formula	$C_{21}H_{30}O_5$
CAS Number	50-23-7

Section 4. First Aid Measures

Description of First-Aid Measures
Eye Contact: Flush eye(s) immediately with plenty of water. If irritation occurs or persists, get medical attention.
Skin Contact: Wash exposed area with soap and water. Remove contaminated clothing and obtain medical assistance if irritation occurs. This material may not be completely removed by conventional laundering. Consult professional laundry service. Do not home launder.
Ingestion: Never give anything by mouth to an unconscious person. Wash out mouth with water. Do not induce vomiting unless directed by medical personnel. Seek medical attention immediately.
Inhalation: Remove to fresh air and keep patient at rest. Seek medical attention immediately.

Most Important Symptoms and Effects, both Acute and Delayed
Symptoms and Effects of Exposure: For information on potential signs and symptoms of exposure, see Section 3 - Emergency Overview and/or Section 11 -Toxicological Information.
Medical Conditions: None known

Indication of the Immediate Medical Attention and Special Treatment Needed
Notes to Physician: None

Section 5. Firefighting Measures

Extinguishing Media: Extinguish fires with CO_2, extinguishing powder, foam, or water.

Special Hazards Arising from the Substance or Mixture
Hazardous Combustion Products: Formation of toxic gases is possible during heating or fire. May include oxides of carbon.
Fire/Explosion Hazards: Very strong dust explosion characteristic. Very high sensitivity of a dust cloud to ignition, based on minimum ignition energy
Advice for Firefighters: During all firefighting activities, wear appropriate protective equipment, including self-contained breathing apparatus.

Section 6. Accidental Release Measures

Personal Precautions, Protective Equipment, and Emergency Procedures: Personnel involved in clean up should wear appropriate personal protective equipment (see Section 8), Minimize exposure.
Environmental Precautions: Place waste in an appropriately labeled, sealed container for disposal Care should be taken to avoid environmental release.

Methods and Material for Containment and Cleaning Up
Measures for Cleaning/Collecting: Contain the source of the spill if it is safe to do so. Collect sp1lled material by a method that controls dust generation_ Avoid use of a filtered vacuum to dean spills of dry solids, due to the potential for electrostatic discharge and the very strong dust explosion characteristic and very high sensitivity to ignition.

Additional Consideration for Large Spills: Non-essential personnel should be evacuated from affected area. Report emergency situations immediately. Clean up operations should only be undertaken by trained personnel.

Section 7. Handling and Storage

Precautions for Safe Handling: Ground and bond all bulk transfer equipment. Avoid open handling. Minimize dust generation. All conductive elements of the system that contact the dry substance should be properly bonded and grounded and equipped with proper explosion relief or suppression systems. This material should not be flowed through nonconductive ducts or pipes because of the potential for electrostatic discharge ignition. Restricting the use of high resistivity materials, such as plastics should be considered. Use local exhaust ventilation or perform work under fume hoed/fume cupboard. Avoid inhalation and contact with skin, eye, and clothing. When handling, use appropriate personal protective equipment {see Section 8). Wash hands and any exposed skin after removal of PPE. Releases to the environment should be avoided. Review and implement appropriate technical and procedural waste water and waste disposal measures to prevent occupational exposure or environmental releases. Potential points of process emissions of this material to the atmosphere should be controlled with dust collectors, HEPA filtration systems or other equivalent controls.

Conditions for Safe Storage, including any Incompatibilities
Storage Conditions: Store at room temperature in properly labeled containers, Keep away from heat, sparks and flames.

Section 8. Exposure Controls / Personal Protection

Control Parameters
Hydrocortisone
OEL TWA-S Hr: 100 $\mu g/m^3$, Skin

Analytical Method: Analytical method available. Contact Parchem for further information.

Exposure Controls
Engineering Controls: Engineering controls should be used as the primary means to control exposures Use process containment, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits.

Personal Protective Equipment: Refer to applicable national standards and regulations in the selection and use of personal protective equipment (PPE).
Hands: Wear impervious gloves to prevent skin contact.
Eyes: Wear safety glasses as minimum protection.
Skin: Wear impervious protective clothing to prevent skin contact - consider use of disposable clothing where appropriate
Respiratory Protection: If the applicable Occupational Exposure Limit (OEL) is exceeded, wear an appropriate respirator with a protection factor sufficient to control exposures to below the OEL.

Section 9. Physical and Chemical Properties

Physical State: Crystalline powder
Color: White to off-white
Odor: Odorless
Odor Threshold: No data available
Molecular Formula: $C_{21}H_{30}O_5$
Molecular Weight: 362.5
Solvent Solubility: Miscible in Acetone, chloroform, ethanol, and methanol
Water Solubility: 0.28 mg/mL
pH: No data available
Melting/Freezing Point: 215°C (decomposes)
Boiling Point: No data available

Partition Coefficient

Method	pH	Endpoint	Value
Predicted	7.4	Log D	1.43

Decomposition Temperature: No data available
Evaporation Rate: No data available
Vapor Pressure: No data available
Vapor Density: No data available
Relative Density: No data available
Viscosity: No data available

Flammability
Auto-Ignition Temperature (Solid): No data available
Flammability (Solids): No data available
Flash Point (Liquid): No data available
Upper Explosive Limits (Liquid): No data available
Lower Explosive Limits (Liquid): No data available

Dust Explosivity
Max. Explosion Pressure: 7.85 bar
Max. Rate of Pressure Rise: 1295 bar/sec
Kst Value: 351 bar*m/s
St Class: 3
Min. Ignition Energy: 7 mJ
Min. Explosion Concentration: 37.5 g/m^3

Polymerization: Will not occur

Section 10. Stability and Reactivity

Reactivity: No data available
Chemical Stability: Stable at normal conditions

Possibility of Hazardous Reactions
Oxidizing Properties: No data available
Conditions to Avoid: Keep away from heat and other sources of ignition, including electrostatic discharge.
Incompatible Materials: As a precautionary measure, keep away from strong oxidizers
Hazardous Decomposition Products: No data available

Section 11. Toxicological Information

Information on Toxicological Effects
Short Term: May cause minimal eye irritation (based on animal data). May be harmful if swallowed. May be harmful if absorbed through the skin. Accidental ingestion may cause effects similar to those seen in clinical use.
Long Term: Animal studies have shown a potential to cause adverse effects on the fetus.

Known Clinical Effects: Ingestion of this material may cause effects similar to those seen in clinical use including nausea, vomiting, muscle cramps, weakness, nervousness, restlessness, trouble sleeping. Clinical use has resulted in changes in electrolytes and/or blood chemistry changes. Drugs of this class may cause Cushing's syndrome, manifested by moon face, obesity, headache, acne, thirst, increased urination, impotence, menstrual irregularities, facial hair growth, and mental changes. Clinical use may cause an increase in blood pressure (hypertension).

Acute Toxicity
Hydrocortisone

Species	Route	End Point	Dose
Rat	Oral	LO_{50}	5000 mg/kg
Mouse	Oral	LD_{50}	5000 mg/kg

Irritation/Sensitization
Hydrocortisone

Study Type	Species	Severity
Eye Irritation	Rabbit	Minimal

Repeated Dose Toxicity
Hydrocortisone

Duration	Species	Route	Dose	End Point	Target Organ
7 Day(s)	Mouse	Oral	140 mg/kg/day	LOAEL	Thymus
4 Day(s)	Mouse	Subcutaneous	100 mg/kg/day	LOAEL	Liver
2 Week(s)	Mouse	Subcutaneous	560 mg/kg/day	LOAEL	Liver, Bone Marrow
85 Day(s)	Rat	Subcutaneous	175 mg/kg/day	LOAEL	Adrenal gland

Reproduction & Development Toxicity
Hydrocortisone

Study Type	Species	Route	Dose	End Point	Effect(s)
Embryo I Fetal Development	Mouse	Oral	10 mg/kg/day	LOAEL	Teratogenic
Reproductive & Fertility	Rat	Oral	210 mg/kg/day	LOAEL	Maternal Toxicity

Genetic Toxicity
Hydrocortisone

Study Type	Cell Type/Organism	Result
Bacterial Mutagenicity {Ames}	Salmonella	Negative
Unscheduled DNA Synthesis	Rat	Negative

Carcinogen Status: Not listed as a carcinogen by IARC, NTP, or US OSHA.

Section 12. Ecological Information

Environmental Overview: Environmental properties have not been thoroughly investigated. Releases to the environment should be avoided.
Toxicity: No data available
Persistence and Degradability: No data available

Bio-Accumulative Potential
Partition Coefficient
Hydrocortisone

Method	pH	Endpoint	Value
Predicted	7.4	Log D	1.43

Mobility in Soil: No data available

Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.

Section 14. Transport Information

Not regulated for transport under US DOT, EU ADR, IATA, or IMDG regulations.

Section 15. Regulatory Information

Safety, Health, and Environmental Regulations/Legislation Specific for the Substance or Mixture
Canada - WHMIS Classifications
WHMIS Hazard Class: Class D, Division 2, Subdivision A

Hydrocortisone
CERCLA/SARA 313 Emission reporting: Not Listed
California Proposition 65: Not Listed
Inventory - United States TSCA - Sect. 8(b): Present
Australia (AICS): Present
Standard for the Uniform Scheduling for Drugs and Poisons: Schedule 2; Schedule 3; Schedule4

EU EINECS/ELINCS List: 200-020-1

HMIS Rating
Health: 1
Flammability: 0

Reactivity: 0

Section 16. Other Information

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

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