SAFETY DATA SHEET
$MnCl_2$

1. IDENTIFICATION

Product Name	$MnCl_2$
Recommended use of the chemical and restrictions on use	
Identified Uses	For Research and Development Use Only
Company Identification	Covaris, Inc. 14 Gill Street, Unit H Woburn, MA 01801
Customer Information Number	(781) 932-3959
Emergency Telephone Number	
Chemtrec Number	(800) 424-9300 (for emergencies only)
Issue Date	March 12, 2014
Supersedes Date	

Safety Data Sheet prepared in accordance with OSHA's Hazard Communication Standard (29 CFR 1910.1200)and the Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

2. HAZARD IDENTIFICATION

Hazard Classification
Serious eye damage/eye irritation - Category 2A

Label Elements
Hazard Symbols

Signal Word: Warning

Hazard Statements
Causes serious eye irritation.

Precautionary Statements

Prevention
Wear eye/face protection.
Wash hands thoroughly after handling.
Response
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.
Storage
None
Disposal
None

Other Hazards

None

2. HAZARD IDENTIFICATION

Specific Concentration Limits

The values listed below represent the percentages of ingredients of unknown toxicity.

Acute oral toxicity	0%
Acute dermal toxicity	<10%
Acute inhalation toxicity	<10%
Acute aquatic toxicity	<10%

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Component	CAS Number	Concentration
Manganese (II) Chloride	7773-01-5	1 - 5%

4. FIRST- AID MEASURES

Description of necessary first-aid measures

Eyes

Immediately flood the eye with plenty of water for at least 15 minutes, holding the eye open. Obtain medical attention if soreness or redness persists.

Skin

Wash affected area with plenty of water. Seek medical attention if symptoms persist.

Ingestion

Do not induce vomiting. Have victim drink 1-3 glasses of water to dilute stomach contents. Never administer anything by mouth if a victim is losing consciousness, is unconscious or is convulsing. Obtain medical attention immediately.

Inhalation

Remove from exposure. If there is difficulty in breathing, give oxygen. Obtain medical attention if symptoms persist.

Most important symptoms/effects, acute and delayed

Aside from the information found under description of necessary first aid measures (above) and Indication of immediate medical attention and special treatment needed, no additional symptoms and effects are anticipated.

Indication of immediate medical attention and special treatment needed

Notes to Physicians

Treat symptomatically.

5. FIRE - FIGHTING MEASURES

Suitable (and unsuitable) Extinguishing Media

Use foam, dry chemical or carbon dioxide. Use water spray for surroundings and containers.

Specific hazards arising from the chemical

None known.

Special Protective Actions for Fire-Fighters

Wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Wear appropriate protective clothing.

Environmental Precautions
Prevent the material from entering drains or watercourses. Notify authorities if spill has entered watercourse or sewer or has contaminated soil or vegetation.

Methods and materials for containment and cleaning up
Contain and absorb using earth, sand or other inert material. Transfer into suitable containers for recovery or disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Wear appropriate protective equipment when handling. Do not eat or drink while handling this material. Avoid contact with eyes, skin and clothing.

Conditions for safe storage
Keep container tightly closed when not in use. Storage area should be: cool - dry - well ventilated - out of direct sunlight - away from incompatible materials (see Section 10)

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters
Exposure limits are listed below, if they exist.

Manganese(II) Chloride (Manganese elemental and inorganic compounds as Mn)
ACGIH: TLV 0.1 mg/m^3 8hTWA, inhalable fraction
ACGIH: TLV 0.02 mg/m^3 8hTWA, respirable fraction

Appropriate engineering controls
Use engineering methods to prevent or control exposure. Methods include process or personnel enclosure, mechanical ventilation (dilution and local exhaust), and control of process conditions.

Individual protection measures
Respiratory Protection
Respiratory protection not normally required.
Skin Protection
Chemical resistant gloves
Eye/Face Protection
Chemical goggles or safety glasses with side shields
Body Protection
Normal work wear.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical State	Liquid
Color	Clear
Odor	Characteristic
Odor Threshold	No data available

9. PHYSICAL AND CHEMICAL PROPERTIES

pH	5
Specific Gravity	No data available
Boiling Range/Point (°C/F)	No data available
Melting Point (°C/F)	No data available
Flash Point (PMCC) (°C)	No data available
Vapor Pressure	No data available
Evaporation Rate (BuAc=1)	No data available
Solubility in Water	Fully miscible
Vapor Density (Air = 1)	No data available
VOC (g/l)	No data available
Partition coefficient (n-octanol/water)	No data available
Viscosity	No data available
Auto-ignition Temperature	No data available
Decomposition Temperature	No data available
Upper explosive limit	No data available
Lower explosive limit	No data available
Flammability (solid, gas)	No data available

10. STABILITY AND REACTIVITY

Reactivity
No known reactivity.

Chemical Stability
Stable under normal conditions.

Possibility of hazardous reactions
Hazardous polymerization will not occur.

Conditions to Avoid
Heat - high temperatures

Incompatible Materials
None known

Hazardous Decomposition Products
None known

11. TOXICOLOGICAL INFORMATION

Acute Toxicity
Manganese (II) Chloride:
LD50 Oral Mouse 1330 mg/kg
LD50 Dermal Rabbit >5000 mg/kg

Specific Target Organ Toxicity (STOT) – single exposure
Manganese (II) Chloride: No data available

Specific Target Organ Toxicity (STOT) – repeat exposure
Manganese (II) Chloride: Category 2; May cause damage to the brain through prolonged or repeated inhalation exposure.

11. TOXICOLOGICAL INFORMATION

Serious Eye damage/Irritation
Manganese (II) Chloride: Severe eye irritant based on animal studies.

Skin Corrosion/Irritation
Manganese (II) Chloride: Mild irritant in rabbit skin testing and non-irritating to reconstituted human epidermis model EPISKIN™

Respiratory or Skin Sensitization
Manganese (II) Chloride: No data available

Carcinogenicity
Not considered carcinogenic by NTP, IARC, and OSHA.

Germ Cell Mutagenicity
Manganese (II) Chloride: Mammalian Erythrocyte Micronucleus Test - negative

Reproductive Toxicity
Manganese (II) Chloride: No data available

Aspiration Hazard
No data available

12. ECOLOGICAL INFORMATION

Ecotoxicity
Manganese (II) Chloride: Aquatic Chronic Category 2 -Toxic to aquatic life with long lasting effects.

Mobility in soil
No relevant studies identified.

Persistence/Degradability
No relevant studies identified.

Bioaccumulative Potential
No relevant studies identified.

Other adverse effects
No relevant studies identified.

13. DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose of in accordance with all applicable local and national regulations.

14. TRANSPORT INFORMATION

Contact supplier for transport information.

15. REGULATORY INFORMATION

United States TSCA Inventory
All components of this product are in compliance with the inventory listing requirements of the US Toxic Substance Control Act (TSCA) Chemical Substance Inventory.

Canada DSL Inventory
Components of this product have not been verified for inclusion on the Domestic Substance List (DSL).

WHMIS Classification
D2B
This product was classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations and the MSDS contains all the information required by these regulations.

SARA Title III Sect. 311/312 Categorization
Immediate (Acute)

16. OTHER INFORMATION

NFPA Ratings
NFPA Code for Flammability - 0
NFPA Code for Health - 2
NFPA Code for Reactivity - 0
NFPA Code for Special Hazards – None

HMIS Ratings
HMIS Code for Flammability - 0
HMIS Code for Health - 2
HMIS Code for Physical Hazard - 0
HMIS Code for Personal Protection - See Section 8
*Chronic

Legend
ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstracts Service
ECHA: European Chemicals Agency
IARC: International Agency for Research on Cancer
N/A: Denotes no applicable information found or available
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
PEL: Permissible Exposure Limit
SDS: Safety Data Sheet
STEL: Short Term Exposure Limit
TLV: Threshold Limit Value

Information Source and References
This SDS is prepared by Hazard Communication Specialists based on information provided by internal company references.

Prepared By: EnviroNet LLC.

16. OTHER INFORMATION

The information and recommendations presented in this SDS are based on sources believed to be accurate. Covaris assumes no liability for the accuracy or completeness of this information. It is the user's responsibility to determine the suitability of the **material** for their particular purposes. In particular, we make NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, with respect to such information, and we assume no liability resulting from its use. Users should ensure that any use **or disposal** of the material is in accordance with applicable Federal, State, and local laws and regulations.