SAFETY DATA SHEET

Revision Date 19-December-2025 **Revision Number** 5

This safety data sheet was created pursuant to the requirements of: Canada WHMIS 2015 which includes the amended Hazardous Products Act (HPA) and the Hazardous Products Regulation (HPR) - SOR 2022-272

1. Identification

Product Name **(R,R)-(-)N,N`-Bis(3,5-di-tert-butylsalicylidene)-1,2-cyclohexanediamino manganese(III) chloride**

Cat No. : **AC295810000; AC295810010; AC295810025; AC295810050; AC295810250**

CAS-No 138124-32-0
Synonyms (R,R)-Jacobsen`s catalyst manganese(III) chloride complex

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Importer/Distributor
Fisher Scientific
112 Colonnade Road,
Ottawa, ON K2E 7L6,
Canada
Tel: 1-800-234-7437

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Manufacturer
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No. **US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification

WHMIS 2015 Classification This product is hazardous in accordance with the Canada Hazardous Products Act (HPA) and Hazardous Products Regulation (HPR), as amended (SOR/2022-272)

Acute oral toxicity	Category 4
Acute dermal toxicity	Category 4
Acute Inhalation Toxicity	Category 4
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	

Label Elements

Signal Word
Warning

Hazard Statements
Harmful if swallowed, in contact with skin or if inhaled
Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation
Harmful if inhaled

Precautionary Statements
Prevention
Avoid breathing dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Wear protective gloves/protective clothing/eye protection/face protection
Response
IF ON SKIN: Wash with plenty of soap and water
IF INHALED: Remove person to fresh air and keep comfortable for breathing
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Call a POISON CENTER/ doctor if you feel unwell
Rinse mouth
Take off contaminated clothing and wash it before reuse
Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Manganese, chloro[[2,2-[(1R,2R)-1,2-cyclohexanediylbis[(nitrilo-.kappa.N)methylidyne]]bis[4,6-bis(1,1-dimethylethyl) phenolato-.kappa.O]](2-)]-, (SP-5-13)-	138124-32-0	98

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention.

Inhalation Remove from exposure, lie down. Remove to fresh air. If not breathing, give artificial

respiration. Get medical attention.

Ingestion Clean mouth with water. Get medical attention.

Most important symptoms/effects Difficulty in breathing. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. Chemical foam.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature Not applicable
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Flammable. Explosive properties.

Hazardous Combustion Products
Nitrogen oxides (NOx). Carbon monoxide (CO). Carbon dioxide (CO_2). Chlorine. Heavy metal oxides. Hydrogen chloride gas.
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.

NFPA

Health	Flammability	Instability	Physical hazards
2	0	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment as required.
Environmental Precautions See Section 12 for additional Ecological Information. Should not be released into the environment. Do not allow material to contaminate ground water system. Do not flush into surface water or sanitary sewer system.

Methods for Containment and Clean Up Sweep up and shovel into suitable containers for disposal.

7. Handling and storage

Handling Avoid contact with skin and eyes. Do not breathe dust. Handle product only in closed system or provide appropriate exhaust ventilation.

Storage. Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Incompatible Materials. Strong oxidizing agents.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limitsestablished by the region specific regulatory bodies.

Component	Alberta	British Columbia	Ontario TWAEV	Quebec
Manganese, chloro[[2,2-[(1R,2R)-1,2-cyclohexanediylbis[(nitrilo-.kappa.N)methylidyne]]bis[4,6-bis(1,1-dimethylethyl)phenolato-.kappa.O]](2-)]-, (SP-5-13)-	-	-	-	TWA: 0.2 mg/m³

Component	Nunavut	Prince Edward Island	Saskatchewan	Yukon
Manganese, chloro[[2,2-[(1R,2R)-1,2-cyclohexanediylbis[(nitrilo-.kappa.N)methylidyne]]bis[4,6-bis(1,1-dimethylethyl)phenolato-.kappa.O]](2-)]-, (SP-5-13)-				Ceiling: 5 mg/m³

Component	ACGIH TLV	OSHA PEL	NIOSH
Manganese, chloro[[2,2-[(1R,2R)-1,2-cyclohexanediylbis[(nitrilo-.kappa.N)methylidyne]]bis[4,6-bis(1,1-dimethylethyl)phenolato-.kappa.O]](2-)]-, (SP-5-13)- 138124-32-0 (98)		(Vacated) Ceiling: 5 mg/m³ Ceiling: 5 mg/m³	IDLH: 500 mg/m³ REL = 1 mg/m³ (TWA) STEL: 3 mg/m³

Legend

OSHA - Occupational Safety and Health Administration

NIOSH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.
Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection Goggles
Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	Glove comments
Nitrile rubber Viton (R)	See manufacturers recommendations	-	Splash protection only

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly
Recommended Filter type: low boiling organic solvent Type AX Brown conforming to EN371 Type A Brown

When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls

No information available.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

9. Physical and chemical properties

Appearance			
Physical State	Powder Solid		
Color	Dark brown		
Odor	No information available		
Odor Threshold	No information available		
Property	**Values**	**Remarks**	**• Method**
Melting Point/Range	330 - 332 °C / 626 - 629.6 °F		
Softening Point	No data available		
Boiling Point/Range	No information available		
Flash Point	No information available	**Method -** No information available	
Flammability (liquid)	Not applicable	Solid	
Flammability (solid,gas)	No information available		
Explosion Limits	No data available		
Autoignition Temperature	Not applicable		
Decomposition Temperature	No data available		
pH	No information available		
Viscosity	Not applicable	Solid	
Water Solubility	No information available		
Solubility in other solvents	No information available		
Partition Coefficient (n-octanol/water)			
Vapor Pressure	No information available		
Density / Specific Gravity	No data available		
Bulk Density	No data available		
Vapor Density	Not applicable	Solid	
Particle characteristics	No data available		
Other Information			
Molecular Formula	C36 H52 Cl Mn N2 O2		
Molecular Weight	635.21		
Evaporation Rate	Not applicable - Solid		

10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Stable under normal conditions.
Conditions to Avoid	Incompatible products.
Incompatible Materials	Strong oxidizing agents
Hazardous Decomposition Products	Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO_2), Chlorine, Heavy metal oxides, Hydrogen chloride gas
Hazardous Polymerization	Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Information on expected route of exposure

Inhalation Harmful by inhalation. Avoid breathing dust or spray mist.
Ingestion May be harmful if swallowed.
Eyes Avoid contact with eyes. Irritating to eyes.
Skin Avoid contact with skin. May cause irritation. Harmful in contact with skin.

Toxicology data for the components

Toxicologically Synergistic Products No information available

(b) skin corrosion/irritation; Category 2

(c) serious eye damage/irritation; Category 2

(d) respiratory or skin sensitization;
Respiratory No data available
Skin No data available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity;

The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Manganese, chloro[[2,2-[(1R,2R)-1,2-cyclohexanediylbis[(nitrilo-.kappa.N)methylidyne]]bis[4,6-bis(1,1-dimethylethyl)phenolato-.kappa.O]](2-)]-, (SP-5-13)-	138124-32-0	Not listed	Not listed	Not listed	Not listed	Not listed

(g) reproductive toxicity; No data available

(h) STOT-single exposure; Category 3

Results / Target organs Respiratory system.

(i) STOT-repeated exposure; No data available

Target Organs No information available.

(j) aspiration hazard; Not applicable
Solid

Other Adverse Effects The toxicological properties have not been fully investigated.

Symptoms / effects,both acute and delayed Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Other Adverse Effects The toxicological properties have not been fully investigated.

Endocrine Disrupting Properties This product does not contain any known or suspected endocrine disruptors.

12. Ecological information

Ecotoxicity
May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

Persistence and Degradability May persist

Bioaccumulation/ Accumulation No information available.

Mobility No information available.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory information

International Inventories

Component	CAS-No	DSL	NDSL	TSCA	TSCA Inventory notification - Active-Inactive	EINECS	ELINCS	NLP
Manganese, chloro[[2,2-[(1R,2R)-1,2-cyclohexanediylbis[(nitrilo-.kappa.N)methylidyne]]bis[4,6-bis(1,1-dimethylethyl)phenolato-.kappa.O]](2-)]-, (SP-5-13)-	138124-32-0	-	-	-	-	-	-	-

Component	CAS-No	IECSC	KECL	ENCS	ISHL	TCSI	AICS	NZIoC	PICCS
Manganese, chloro[[2,2-[(1R,2R)-1,2-cyclohexanediylbis[(nitrilo-.kappa.N)methylidyne]]bis[4,6-bis(1,1-dimethylethyl)phenolato-.kappa.O]](2-)]-, (SP-5-13)-	138124-32-0	-	-	-	-	X	-	-	-

Legend:
X - Listed '-' - Not listed
KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances

ENCS - Japanese Existing and New Chemical Substances
AICS - Australian Inventory of Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances

Canada

SDS in compliance with provisions of information as set out in Canadian Standard - Part 4, Schedule 1 and 2 of the Hazardous Products Regulations (HPR) and its amendments and meets the requirements of the HPR (Paragraph 13(1)(a) of the revised Hazardous Products Act (HPA)).

Component	Canada - National Pollutant Release Inventory (NPRI)	Canadian Environmental Protection Agency (CEPA) - List of Toxic Substances	Canada's Chemicals Management Plan (CEPA)
Manganese, chloro[[2,2-[(1R,2R)-1,2-cyclohexanediylbis[(nitrilo-.kappa.N)methylidyne]]bis[4,6-bis(1,1-dimethylethyl)phenolato-.kappa.O]](2-)]-, (SP-5-13)-	Part 1, Group A Substance		

Other International Regulations

Authorisation/Restrictions according to EU REACH Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?
Not applicable

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

Component	CAS-No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Manganese, chloro[[2,2-[(1R,2R)-1,2-cyclohexanediylbis[(nitrilo-.kappa.N)methylidyne]]bis[4,6-bis(1,1-dimethylethyl)phenolato-.kappa.O]](2-)]-, (SP-5-13)-	138124-32-0	Not applicable	Not applicable	Not applicable	Not applicable

Component	CAS-No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Manganese, chloro[[2,2-[(1R,2R)-1,2-cyclohexanediylbis[(nitrilo-.kappa.N)methylidyne]]bis[4,6-bis(1,1-dimethylethyl)phenolato-.kappa.O]](2-)]-, (SP-5-13)-	138124-32-0	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

Prepared By Product stewardship (Regulatory Affairs)
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Revision Summary

This document has been updated to comply with the requirements of WHMIS 2015 which includes the amended Hazardous Products Act (HPA) and the Hazardous Products Regulation (HPR) to align with the Globally Harmonised System (GHS) (V7/8) for the Classification and Labelling of Chemicals.

Disclaimer

The information provided in this 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 SDS