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SAFETY DATA SHEET

(R,R)-COBALT SALEN (R-SALEN-CO)

(As per GHS / SDS 16-Section Format)

SDS Version: 1.0 | Date of Issue: 01 September, 2026

DANGER: This material is classified as Skin Sensitiser Category 1A and STOT RE Category 1 (causes damage to organs through prolonged or repeated exposure). This is a more serious hazard profile than the simpler Cobalt Salen (Salcomine) compound. See Section 2 and Section 11.

SECTION 1: IDENTIFICATION

Product Name: (R,R)-Cobalt Salen (R-Salen-Co)

Synonyms: (R,R)-Co(salen); (R,R)-Jacobsen HKR Catalyst; (R,R)-(-)-N,N'-Bis(3,5-di-tert-butylsalicylidene)-1,2-cyclohexanediaminocobalt(II)

CAS No.: 176763-62-5 | **MDL No.:** MFCD01631277

Molecular Formula: C₃₆H₅₂CoN₂O₂

Recommended Use: Chiral catalyst for hydrolytic kinetic resolution (HKR) of epoxides and asymmetric synthesis. This is a specialised research/fine chemical catalyst, not a Flavour & Fragrance ingredient, and is not itself a pharmaceutical/API. Not for pharmaceutical/API use.

Supplier: Eco Organics, B-5/C-5 to C-7, D-20, Ajeetpur Indl. Estate, Rampur – 244901, U.P., India

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SECTION 2: HAZARDS IDENTIFICATION

GHS Classification: Skin Sensitisation – Category 1A (H317); Specific Target Organ Toxicity, Repeated Exposure – Category 1 (H372); Aquatic Chronic – Category 3 (H412)

Signal Word: DANGER

Hazard Statements: H317 – May cause an allergic skin reaction. H372 – Causes damage to organs through prolonged or repeated exposure. H412 – Harmful to aquatic life with long lasting effects.

Precautionary Statements:

P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P260 Do not breathe dust/fume/gas/mist/vapours/spray. P264 Wash exposed skin thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P272 Contaminated work clothing should not be allowed out of the workplace. P273 Avoid release to the environment. P280 Wear protective gloves/protective clothing/eye protection/face protection. P302+P352 IF ON SKIN: Wash with plenty of soap and water. P308+P313 IF exposed or concerned: Get medical advice/attention. P314 Get medical advice/attention if you feel unwell. P321 Specific treatment (see label). P333+P313 If skin irritation or rash occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash before reuse. P391 Collect spillage. P405 Store locked up. P501 Dispose of contents/container in accordance with local, state and central regulations.

Other Hazards – IMPORTANT: This substance contains cobalt. Cobalt and many cobalt compounds carry additional harmonised EU CLP classifications for Carcinogenicity (Category 1B), Germ Cell Mutagenicity (Category 2), and Reproductive Toxicity (Category 1B), reflecting concerns established for the cobalt-compound class generally. The STOT RE 1 classification identified for this specific compound is already a serious classification in its own right; treat this material with the same level of caution as a confirmed systemic toxicant, and verify the complete hazard picture against a manufacturer SDS before relying on this document alone.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Substance / Mixture: Substance (chiral coordination complex, single enantiomer)

Component: (R,R)-Cobalt Salen – CAS No. 176763-62-5, containing cobalt (Co) coordinated to a substituted salen (Schiff base) ligand derived from (1R,2R)-1,2-cyclohexanediamine

Concentration: Min. 97.0% (typical commercial grade; verify against actual batch COA)



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SECTION 4: FIRST-AID MEASURES

Inhalation: Remove to fresh air. Get medical advice/attention if you feel unwell.

Skin Contact: Remove contaminated clothing immediately. Wash skin thoroughly with soap and water. Get medical advice/attention if irritation or an allergic reaction develops.

Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses if present. Seek medical attention if irritation persists.

Ingestion: Rinse mouth with water. Do not induce vomiting. Get medical advice/attention. Show this SDS to the physician.

SECTION 5: FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: Dry chemical, CO₂, foam, water spray/fog, appropriate to the surrounding fire.

Unsuitable Media: None specifically identified; use extinguishing media appropriate to surrounding materials.

Specific Hazards: Solid material; not expected to present unusual fire hazard. May decompose on heating to release irritant/toxic fumes including cobalt oxides and nitrogen oxides.

Firefighter Protection: Wear self-contained breathing apparatus (SCBA) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions: Avoid generating and breathing dust. Ensure adequate ventilation. Wear full PPE including respiratory protection given the STOT RE 1 classification.

Environmental Precautions: Prevent entry into drains, water courses, or soil — this material is harmful to aquatic life with long lasting effects (H412).

Containment / Clean-up: Sweep up carefully without raising dust and collect in suitable, labelled containers for disposal by a licensed hazardous waste contractor. Avoid dust formation.

SECTION 7: HANDLING AND STORAGE

Handling: Handle only with adequate local exhaust ventilation or in a fume hood. Avoid breathing dust. Avoid all skin contact given the sensitisation classification. Do not eat, drink, or smoke while handling. Wash hands thoroughly after handling.

Storage: Store in a tightly sealed container, in a cool, dry place, protected from moisture, access-controlled (locked). Storage under an inert atmosphere (nitrogen/argon) is recommended to preserve catalytic activity.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits: No specific OEL identified for this exact complex; note that cobalt and cobalt compounds generally are subject to increasingly stringent occupational exposure limits in several jurisdictions (e.g., EU indicative OEL for cobalt and inorganic cobalt compounds: 0.01 mg/m³ as Co, 8-hr TWA — verify current applicable limit). Given the STOT RE 1 classification, exposure should be minimised to as low as reasonably achievable (ALARA).

Engineering Controls: Use only with dedicated local exhaust ventilation or in a fume hood. Do not rely on general ventilation alone.

PPE – Eyes/Face: Chemical safety goggles plus face shield.

PPE – Skin/Hands: Chemical-resistant gloves and protective clothing; avoid any skin contact.

PPE – Respiratory: Given the STOT RE 1 classification, use a properly fitted respirator with appropriate cartridge (dust/particulate, organic vapour) whenever there is potential for airborne exposure. Periodic medical examination of exposed personnel is recommended.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Red-brown to dark red crystalline powder
Molecular Formula	C ₃₆ H ₅₂ CoN ₂ O ₂
Molecular Weight	603.76 g/mol
Melting / Decomposition Point	Greater than 350°C (literature)
Solubility in Water	Practically insoluble; soluble in dichloromethane, toluene, THF
Purity	Min. 97.0% (typical commercial grade)



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Enantiomeric Purity

Min. 98.0% ee (typical)

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable under recommended storage conditions. May function as a catalyst for oxidation/epoxide-opening reactions; store away from reactive substrates when not in use.

Conditions to Avoid: Moisture, prolonged exposure to air, strong heat.

Incompatible Materials: Strong oxidizing agents, strong acids, epoxides and other reactive substrates (catalytic reactivity).

Hazardous Decomposition: Cobalt oxides, nitrogen oxides, and other irritant/toxic fumes on strong heating or combustion.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute Toxicity: Not classified for acute oral/dermal/inhalation toxicity based on the specific-compound data reviewed.

Skin Sensitisation: May cause an allergic skin reaction (Category 1A – known/presumed strong human skin sensitiser).

STOT – Repeated Exposure: Causes damage to organs through prolonged or repeated exposure (Category 1). This is a serious systemic toxicity classification; the specific target organ(s) should be confirmed against a manufacturer SDS.

Cobalt-Related Concerns: Cobalt and many cobalt compounds are additionally associated with respiratory sensitisation (occupational asthma), suspected carcinogenicity (IARC Group 2B for cobalt and cobalt compounds; several specific cobalt salts classified Carc. 1B under EU CLP), and reproductive toxicity concerns.

Chronic Effects: Given the STOT RE 1 and Skin Sens. 1A classifications, repeated or prolonged exposure by any route must be strictly avoided. Periodic medical examination of occupationally exposed personnel is strongly advised.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: Classified Aquatic Chronic 3 (H412) – harmful to aquatic life with long lasting effects. Avoid release to the environment.

Persistence / Degradability: Limited specific data available; the cobalt content will not degrade.

Bioaccumulation: Limited specific data available; the compound's high lipophilicity (large organic ligand system) suggests some potential for bioaccumulation, though specific data is lacking.

Mobility: Practically insoluble in water; limited aqueous mobility expected as the solid complex.

SECTION 13: DISPOSAL CONSIDERATIONS

Dispose of only through a licensed hazardous waste contractor, in accordance with applicable local, state and central pollution control regulations, given the STOT RE 1, skin sensitisation, and cobalt-content hazards. Do not discharge into drains or water courses.

Contaminated packaging must be handled and disposed of as hazardous waste.

SECTION 14: TRANSPORT INFORMATION

Given the STOT RE Category 1 (H372) and Skin Sensitisation Category 1A (H317) classifications identified, this material may meet the criteria for a regulated Dangerous Good for transport under ADR/IMDG/IATA. A specific UN number and packing group have not been confirmed here — this MUST be confirmed with a qualified Dangerous Goods consultant or your freight forwarder before shipment; do not assume standard shipping applies without verification.

SECTION 15: REGULATORY INFORMATION

This document does not certify that this material meets any pharmaceutical, food-contact, or other regulated-grade specification. Eco Organics does not hold a Drug Manufacturing License and does not represent this material as suitable for pharmaceutical or medicinal use, though it is commonly used as a catalyst in the synthesis of pharmaceutical intermediates by third parties. This product falls well outside Eco Organics' usual Flavour & Fragrance product range; any buyer is solely responsible for independently verifying the intended application, required occupational safety controls, and applicable regulatory requirements — including cobalt-specific and STOT-specific occupational and environmental regulations — in the destination market.



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SECTION 16: OTHER INFORMATION

This Safety Data Sheet has been compiled from published scientific and regulatory literature to the best of our knowledge, and is provided in good faith, as no batch-specific test report or manufacturer SDS was available at the time of preparation. It does not constitute a warranty of any specific property. Given that (a) this is a specialised chiral catalyst compound well outside our usual product category, (b) it carries a Skin Sensitisation Category 1A and STOT RE Category 1 classification — a genuinely serious hazard profile — and (c) it contains cobalt, an element subject to significant and evolving regulatory scrutiny, we strongly recommend this document be reviewed by a qualified EHS/regulatory/toxicology professional — and verified against a current manufacturer SDS — before any handling, storage, transport, or regulatory decision is made based on it. This SDS is subject to revision as new information becomes available.

Date: 01 September, 2026

Authorized Signatory

For Eco Organics

Partner

(Company Seal)