

Material Safety Data Sheet

Rotenone, 97%

ACC# 01143

Section 1 - Chemical Product and Company Identification

MSDS Name: Rotenone, 97%

Catalog Numbers: AC132370000, AC132370050, AC132370250, AC384300000, AC384300050, AC384300250 AC384300250

Synonyms: (-)-Rotenone(1)Benzopyrano(3,4-b)furo(2,3-h)(1)benzopyran-6(6ah)- one, 1,2,12,12a-tetrahydro; 5'-beta-Rotenone;

Company Identification:

Acros Organics N.V.

One Reagent Lane

Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01

For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
83-79-4	Rotenone	97	201-501-9

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: slightly yellow powder.

Danger! Harmful if swallowed. Causes respiratory tract irritation. Causes eye and skin irritation. May be harmful if absorbed through the skin. May cause digestive tract irritation with nausea, vomiting, and diarrhea. May cause central nervous system depression. This substance has caused adverse reproductive and fetal effects in animals. May cause liver and kidney damage. Light sensitive. Air sensitive.

Target Organs: Kidneys, central nervous system, liver, respiratory system.

Potential Health Effects

Eye: Causes eye irritation.

Skin: Causes skin irritation.

Ingestion: Harmful if swallowed. Ingestion may cause irritation of the digestive tract with abdominal pain, vomiting, diarrhea, numbness of the oral mucous membrane, slow or irregular pulse, incoordination, and muscle tremors.

Inhalation: Causes respiratory tract irritation. Inhalation of large amounts may cause respiratory stimulation, followed by respiratory depression, convulsions and possible death due to respiratory paralysis. This product is more toxic when inhaled than when ingested.

Chronic: Prolonged or repeated skin contact may cause dermatitis. Prolonged or repeated eye contact may cause conjunctivitis. May cause liver and kidney damage. May cause reproductive and fetal effects. Laboratory experiments have resulted in mutagenic effects. Exposure to large doses may cause central nervous system depression.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately. Wash mouth out with water.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Extinguishing Media: Use extinguishing media most appropriate for the surrounding fire. Use water spray, dry chemical, carbon dioxide, or chemical foam.

Flash Point: Not applicable.

Autoignition Temperature: Not applicable.

Explosion Limits, Lower:Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 2; Flammability: 0; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Avoid generating dusty conditions. Provide ventilation. Place under an inert atmosphere.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Minimize dust generation and accumulation. Do not breathe dust, vapor, mist, or gas. Do not get in eyes, on skin, or on clothing. Do not ingest or inhale. Store protected from light. Handle under an inert atmosphere. Store protected from air. Use only in a chemical fume hood.

Storage: Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Do not expose to air. Store protected from light. Store under an inert atmosphere.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Rotenone	5 mg/m3 TWA	5 mg/m3 TWA 2500 mg/m3 IDLH	5 mg/m3 TWA

OSHA Vacated PELs: Rotenone: 5 mg/m3 TWA

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Powder

Appearance: slightly yellow

Odor: odorless

pH: Not available.

Vapor Pressure: Not available.

Vapor Density: Not available.

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: 210 - 220 deg C @ 0.50mm Hg

Freezing/Melting Point: 165 - 166 deg C

Decomposition Temperature: Not available.

Solubility: insoluble

Specific Gravity/Density: 1.27 @ 20C

Molecular Formula: C₂₃H₂₂O₆

Molecular Weight: 394.41

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Incompatible materials, light, dust generation, exposure to air, excess heat.

Incompatibilities with Other Materials: Strong oxidizing agents, alkalis, air.

Hazardous Decomposition Products: Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:

CAS# 83-79-4: DJ2800000

LD50/LC50:

CAS# 83-79-4:

Draize test, rabbit, eye: 1% Mild;

Inhalation, rat: LC50 = 20 mg/m³;

Oral, mouse: LD50 = 2800 ug/kg;

Oral, rat: LD50 = 25 mg/kg;

Skin, rabbit: LD50 = >1 gm/kg;

Skin, rat: LD50 = >940 mg/kg;

Carcinogenicity:

CAS# 83-79-4: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information found

Teratogenicity: Oral, rat: TDLo = 50 mg/kg (female 6-15 day(s) after conception) Specific Developmental Abnormalities - musculoskeletal system.; Oral, rat: TDLo = 98 mg/kg (female 6-15 day(s) after conception) Effects on Newborn - live birth index (measured after birth).

Reproductive Effects: Oral, rat: TDLo = 100 mg/kg (female 6-15 day(s) after conception) Fertility - post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants) and Fertility - litter size (e.g. # fetuses per litter; measured before birth).; Oral, rat: TDLo = 2960 ug/kg (female 6-9 day(s) after conception) Maternal Effects - uterus, cervix, vagina.

Mutagenicity: Oral, rat: TDLo = 3245 mg/kg/2Y-C (Tumorigenic - equivocal tumorigenic agent by RTECS criteria - Endocrine - tumors).; Intraperitoneal, rat: TDLo = 71 mg/kg/42D-I (Tumorigenic - neoplastic by RTECS criteria - Skin and Appendages - tumors).; Oral, rat: TD = 3285 mg/kg/2Y-C (Tumorigenic - equivocal tumorigenic agent by RTECS criteria - Endocrine - thyroid tumors).; DNA Damage: Rat, Liver = 15 umol/L.; Mutation in Mammalian Somatic Cells: Mouse, Lymphocyte = 250 ug/L.

Neurotoxicity: No information found

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: Fathead Minnow: LC50 = 0.142 mg/L; 96 Hr; Static bioassay Fish: Rainbow trout: LC50 = 0.031 mg/L; 96 Hr; Static bioassay at 12C (pH 7.2-7.5) Fish: Bluegill/Sunfish: LC50 = 0.023 mg/L; 96 Hr; Static bioassay at 24C (pH 7.2-7.5) Water flea Daphnia: EC50 = 0.0037 mg/L; 48 Hr; Unspecified No data available.

Environmental: Rotenone exists in the ambient atmosphere in the vapor phase where it is degraded by the reaction with photochemically produced hydroxyl radicals with a half-life of 0.05 days. Estimated Koc value = 4.000. This value indicates that this product will show slight soil mobility and may adsorb to sediment or particulate matter in water. Bioconcentration in aquatic organisms is expected to be high based upon an estimated BCF value of 770. Rotenone rapidly degrades in soil and water with a half-life of 1-3 days for both aerobic aquatic and anaerobic aquatic soils.

Physical: No information available.

Other: It is toxic to animals and very toxic to fish, but leaves no harmful residue on vegetable crops. Used as an insecticide and as a fish poison. Rotenone works by inhibiting biochemical processes at the cellular level, which results in an inability of the fish to use oxygen in the release of energy during normal body processes. They suffocate due to lack of oxygen.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	DOT regulated - small quantity provisions apply (see 49CFR173.4)	TOXIC SOLID ORGANIC NOS (ROTENONE)
Hazard Class:		6.1
UN Number:		UN2811
Packing Group:		III

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 83-79-4 is not listed on the TSCA inventory. It is for research and development use only.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

Section 313

No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 83-79-4 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

T

Risk Phrases:

R 25 Toxic if swallowed.

R 36/37/38 Irritating to eyes, respiratory system and skin.

Safety Phrases:

S 22 Do not breathe dust.

S 24/25 Avoid contact with skin and eyes.

S 36 Wear suitable protective clothing.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 83-79-4: No information available.

Canada - DSL/NDSL

CAS# 83-79-4 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D1B, D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

Section 16 - Additional Information

MSDS Creation Date: 5/10/1999

Revision #4 Date: 3/22/2006

The information above is believed to be accurate and represents the best information currently available to us. However, 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 make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.