Material Safety Data Sheet
2,3-Benzofuran, 99.5%

ACC# 92488

Section 1 - Chemical Product and Company Identification

MSDS Name: 2,3-Benzofuran, 99.5%
Catalog Numbers: AC105480000, AC105480050, AC105480100, AC105480250
Synonyms: Coumarone; 1-Oxindene.
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
271-89-6	2,3-Benzofuran	99.5	205-982-6

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear pink liquid. Flash Point: 50 deg C.
Warning! Possible cancer hazard. May cause cancer based on animal data. **Flammable liquid and vapor.** May cause respiratory and digestive tract irritation. May cause eye and skin irritation. May cause central nervous system depression. Light sensitive. Air sensitive.
Target Organs: Kidneys, central nervous system, liver.

Potential Health Effects

Eye: May cause eye irritation. May cause chemical conjunctivitis and corneal damage.
Skin: May cause irritation and dermatitis. May cause cyanosis of the extremities.
Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. Ingestion of large amounts may cause CNS depression.
Inhalation: May cause respiratory tract irritation. Aspiration may lead to pulmonary edema. Vapors may cause dizziness or suffocation. May cause burning sensation in the chest.
Chronic: Possible cancer hazard based on tests with laboratory animals.

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 imme diately.
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: Never give anything by mouth to an unconscious person. Get medical aid immediately. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.
Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
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. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Will burn if involved in a fire. Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire. Flammable liquid and vapor. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.
Extinguishing Media: For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. For large fires, use water spray, fog, or alcohol-resistant foam. Use water spray to cool fire-exposed containers. Water may be ineffective. Do NOT use straight streams of water.
Flash Point: 50 deg C (122.00 deg F)
Autoignition Temperature: Not available.
Explosion Limits, Lower: Not available.
Upper: Not available.
NFPA Rating: (estimated) Health: 1; Flammability: 2; Instability: 0

Section 6 - Accidental Release Measures

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

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. Place under an inert atmosphere. A vapor suppressing foam may be used to reduce vapors.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep away from heat, sparks and flame. Avoid ingestion and inhalation. Store protected from light. Handle under an inert atmosphere. Store protected from air. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.
Storage: Keep away from heat, sparks, and flame. Keep away from sources of ignition. Keep container closed when not in use. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area. Keep refrigerated. (Store below 4°C/39°F.) Do not expose to air. Store protected from light. Store under an inert atmosphere.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
2,3-Benzofuran	none listed	none listed	none listed

OSHA Vacated PELs: 2,3-Benzofuran: No OSHA Vacated PELs are listed for this chemical.
Personal Protective Equipment
Eyes: Wear safety glasses and chemical goggles if splashing is possible.
Skin: Wear appropriate protective gloves and clothing to prevent skin exposure.
Clothing: Wear appropriate protective clothing to minimize contact with skin.
Respirators: Wear a NIOSH/MSHA or European Standard EN 149 approved full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: clear pink
Odor: aromatic odor
pH: Not available.
Vapor Pressure: Not available.
Vapor Density: 4.07
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: 173.0 - 175.0 deg C @ 760.00m
Freezing/Melting Point: Not available.
Decomposition Temperature: Not available.
Solubility: insoluble
Specific Gravity/Density:1.0720g/cm3
Molecular Formula:C8H6O
Molecular Weight:118.13

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures. May discolor on exposure to light. Slowly polymerizes on standing.
Conditions to Avoid: Incompatible materials, light, ignition sources, exposure to air, excess heat, strong oxidants.
Incompatibilities with Other Materials: Strong oxidizing agents, air.
Hazardous Decomposition Products: Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.
Hazardous Polymerization: May occur.

Section 11 - Toxicological Information

RTECS#:
CAS# 271-89-6: DF6423800
LD50/LC50:
Not available.

Carcinogenicity:
CAS# 271-89-6:

- **ACGIH:** Not listed.
- **California:** carcinogen, initial date 10/1/90
- **NTP:** Not listed.
- **IARC:** Group 2B carcinogen

Epidemiology: No information found
Teratogenicity: TDLo(Oral, rat) = 61800 mg/kg/2Y-C;Kidney, Ureter, Bladder, Kidney tumors;TDLo(Oral, mouse) = 30900 mg/kg/2Y-

C;Gastrointestinal - tumors, Liver - tumors.
Reproductive Effects: No information found
Mutagenicity: Mutation test systems(Oral, mouse) = 100 mg/kg;Mutation in mammalian somatic cells(mouseLymphocyte)=100mg/LSister chromatid exchange(Hamster Ovary) = 199 mg/L..
Neurotoxicity: No information found
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: Fathead Minnow: LC50 = 14.1 mg/L; 96 Hr.; UnspecifiedFish: Fathead Minnow: LC50 = 121.36 mg/L; 96 Hr.; QSAR modelingFish: Goldfish: LC50 = 149.08 mg/L; 96 Hr.; QSAR modelingWater flea Daphnia: LC50 = 97.64 mg/L; 96 Hr.; QSAR modelingBacteria: Phytobacterium phosphoreum: EC50 =3.11-4.19 mg/L; 5,15,30 minutes; Microtox test; 15 degrees C No data available.
Environmental: Benzofuran would volatilize from water surfaces with estimated half-lives for a model river and model lake of 5 hours and 5 days, respectively. An experimental BCF value of 360 suggests that benzofuran is expected to bioconcentrate in aquatic organisms.
Physical: If released to the atmosphere, benzofuran will exist as a vapor. Vapor-phase benzofuran is degraded in the atmosphere by reaction with photochemically produced hydroxyl radicals with an estimated half-life of about 10.3 hours. Vapor-phase benzofuran is also degraded in the atmosphere by reaction with ozone with an estimated half-life of about 6.3 days. Although most of the benzofuran released to the atmosphere will exist in the vapor phase, it has been detected as an adsorbed material on airborne dust.
Other: No information available.

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)	No information available.
Hazard Class:		
UN Number:		
Packing Group:		

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 271-89-6 is listed on the TSCA inventory.
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 depletors.
This material does not contain any Class 2 Ozone depletors.
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# 271-89-6 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California Prop 65
The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act:
WARNING: This product contains 2,3-Benzofuran, a chemical known to the state of California to cause cancer.
California No Significant Risk Level: CAS# 271-89-6: 1.1 æg/day NSRL

European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols:

Not available.

Risk Phrases:

R 10 Flammable.
R 40 Limited evidence of a carcinogenic effect.

Safety Phrases:

S 16 Keep away from sources of ignition - No smoking.
S 33 Take precautionary measures against static discharges.
S 9 Keep container in a well-ventilated place.

WGK (Water Danger/Protection)

CAS# 271-89-6: No information available.

Canada - DSL/NDSL

CAS# 271-89-6 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B3.

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: 7/01/1999
Revision #4 Date: 10/03/2005