

MATERIAL SAFETY DATA SHEET



Emergency Phone: 800-992-5994
Dow AgroSciences LLC
Indianapolis, IN 46268

Effective Date: 22-Apr-10
Product Code:108730

COBALT* INSECTICIDE

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: Cobalt* Insecticide

COMPANY IDENTIFICATION:

Dow AgroSciences LLC
9330 Zionsville Road
Indianapolis, IN 46268-1189

2. HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW

Yellow to brown liquid with a slight aromatic odor. May cause permanent impairment of vision. May cause skin irritation. Toxic to aquatic organisms.

EMERGENCY PHONE NUMBER: 800-992-5994

3. COMPOSITION/INFORMATION ON INGREDIENTS:

COMPONENT	CAS NUMBER	W/W%
Chlorpyrifos	002921-88-2	30.0
Gamma-Cyhalothrin	076703-62-3	0.5
Cumene	000098-82-8	1.8 – 3.0
1,2,4-Trimethylbenzene	025551-13-7	6.0 – 30.0
Xylene	001330-20-7	1.8 – 3.0
Balance		33.5 – 59.9

4. FIRST AID:

EYE: Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Call a poison control center or doctor for treatment advice.

SKIN: Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly.

INGESTION: Immediately call a poison control center or doctor for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Never give anything by mouth to an unconscious person.

INHALATION: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). Call a poison control center or doctor for treatment advice.

NOTE TO PHYSICIAN: Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. Chlorpyrifos is a cholinesterase inhibitor. Treat symptomatically. If exposed, plasma and red blood cell cholinesterase tests may indicate significance of exposure (baseline data are useful). Atropine, only by injection, is the preferable antidote. Oximes, such as 2-PAM/protopam, may be therapeutic if used early; however, use only in conjunction with atropine. Carboxyhemoglobinemia may aggravate any preexisting condition sensitive to a decrease in available oxygen, such as chronic lung disease, coronary artery disease or anemia. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE FIGHTING MEASURES:

FLASH POINT: 100-105°F (estimated)

METHOD USED: Not applicable

FLAMMABLE LIMITS

LFL: Not applicable

UFL: Not applicable

EXTINGUISHING MEDIA: Dry chemical or carbon dioxide for small fires, and water spray or foam for large fires.

FIRE AND EXPLOSION HAZARDS: Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Toxic irritating gases may be formed under fire conditions.

FIRE-FIGHTING EQUIPMENT: Use positive-pressure, self-contained breathing apparatus and full protective equipment.

6. ACCIDENTAL RELEASE MEASURES:

ACTION TO TAKE FOR SPILLS: Absorb small spills with materials such as sand, sawdust, Zorball, or dirt. Wash exposed body areas thoroughly after handling. Report large spills to Dow AgroSciences at 800-992-5994.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapors and spray mist. Handle concentrate in ventilated area. Wash thoroughly with soap and water after handling and before eating, chewing gum, using tobacco, using the toilet or smoking. Keep away from food, feedstuffs, and water supplies. Store in original container with the lid tightly closed.

MATERIAL SAFETY DATA SHEET



Emergency Phone: 800-992-5994
Dow AgroSciences LLC
Indianapolis, IN 46268

Effective Date: 22-Apr-10
Product Code:108730

COBALT* INSECTICIDE

8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

These precautions are suggested for conditions where the potential for exposure exists. Emergency conditions may require additional precautions.

EXPOSURE GUIDELINES:

Chlorpyrifos: ACGIH TLV and OSHA PEL are 0.2 mg/M³, Skin. ACGIH classification is A4.

Trimethylbenzene: ACGIH TLV is 25 ppm.

Cumene (isopropyl benzene): ACGIH TLV and OSHA PEL are 50 ppm. OSHA classifies as Skin.

Xylene: ACGIH TLV is 100 ppm TWA, 150 ppm STEL, A4. OSHA PEL is 100 ppm TWA.

A "skin" notation following the exposure guideline refers to the potential for dermal absorption of the material including mucous membranes and the eyes either by contact with vapors or by direct skin contact. It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposures should be considered.

ENGINEERING CONTROLS: Maintain airborne levels below exposure limit requirements guidelines. Local exhaust ventilation may be necessary for some operations.

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

EYE/FACE PROTECTION: Use chemical goggles. Eye wash fountain should be located in immediate work area.

SKIN PROTECTION: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

HAND PROTECTION: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: polyethylene, ethyl vinyl alcohol laminate (EVAL), polyvinyl alcohol (PVA), styrene/butadiene rubber, Viton. Examples of acceptable glove barrier materials include: butyl rubber, chlorinated polyethylene, natural rubber (latex), neoprene, polyvinyl chloride (PVC or vinyl), nitrile/butadiene rubber (Nitrile or NBR). The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: other chemicals that may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

RESPIRATORY PROTECTION: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. In misty atmospheres, use an approved particulate respirator. The following should be effective types of air-purifying respirators: organic vapor cartridge with a particulate pre-filter.

APPLICATORS AND ALL OTHER HANDLERS: Refer to the product label for personal protective clothing and equipment.

9. PHYSICAL AND CHEMICAL PROPERTIES:

APPEARANCE: Yellow to brown liquid

ODOR: Aromatic

DENSITY: 1 g/mL

10. STABILITY AND REACTIVITY:

STABILITY: (CONDITIONS TO AVOID) Stable under normal use and storage conditions.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, hydrogen chloride, hydrogen fluoride, nitrogen oxides, hydrogen cyanide, and various chlorinated and fluorinated organic compounds.

HAZARDOUS POLYMERIZATION: Not known to occur.

MATERIAL SAFETY DATA SHEET



Emergency Phone: 800-992-5994
Dow AgroSciences LLC
Indianapolis, IN 46268

Effective Date: 22-Apr-10
Product Code:108730

COBALT* INSECTICIDE

11. TOXICOLOGICAL INFORMATION:

POTENTIAL HEALTH EFFECTS: This section includes possible adverse effects, which could occur if this material is not handled in the recommended manner.

EYE: May cause permanent impairment of vision, even blindness. May cause corneal injury.

SKIN: Brief contact may cause slight skin irritation with local redness. Prolonged contact is unlikely to result in absorption of harmful amounts. Has caused allergic reactions when tested in mice. The LD₅₀ for skin absorption in rats is >5,000 mg/kg.

INGESTION: Moderate toxicity if swallowed. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause serious injury, even death. The oral LD₅₀ for female rats is 320 mg/kg.

INHALATION: No adverse effects are anticipated from single exposure to mist. Prolonged excessive exposure to mist may cause adverse effects. The aerosol LC₅₀ in rats is 2.46 mg/L for 4 hours.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: Signs and symptoms of excessive exposure to chlorpyrifos may be headache, dizziness, incoordination, muscle twitching, tremors, nausea, abdominal cramps, diarrhea, sweating, pinpoint pupils blurred vision, salivation, tearing, tightness in chest, excessive urination, and convulsions. For the active ingredient(s), in animals, effects have been reported on the following organs: adrenal gland. Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use. Excessive exposure may produce organophosphate type cholinesterase inhibition. For trimethylbenzene, in animals, effects have been reported on the following organs: respiratory tract.

CANCER INFORMATION: The active ingredient(s), did not cause cancer in laboratory animals. The minor component(s) have caused cancer in some laboratory animals. In humans, there is limited evidence of cancer in workers involved in naphthalene production. Limited oral studies in rats were negative. Cumene has caused cancer in laboratory animals; however, the relevance of this to humans is unknown. Xylene was not found to be carcinogenic in a National Toxicology Program bioassay in rats and mice.

TERATOLOGY (BIRTH DEFECTS): The active ingredient(s) have been toxic to the fetus in laboratory animals at doses toxic to the mother. Chlorpyrifos did not cause birth defects in laboratory animals. The solvent has been toxic in lab animals at doses producing severe toxicity in the mother. Exaggerated doses of xylene given orally to pregnant mice resulted in an increase in cleft palate, a common developmental abnormality in mice. In animal inhalation studies, xylene caused toxicity to the fetus but did not cause birth defects.

REPRODUCTIVE EFFECTS: Chlorpyrifos did not interfere with fertility in reproduction studies in laboratory animals. Some evidence of toxicity to the offspring occurred, but only at a dose high enough to produce significant toxicity to the parent animals. No relevant information found for the majority of components.

MUTAGENICITY: For naphthalene, in-vitro genetic toxicity studies were negative in some cases and positive in other cases. Based largely or completely on information for remaining components, in-vitro genetic toxicity studies were negative. For the majority of components, animal genetic toxicity studies were negative. For the active ingredient(s), based on a majority of negative data and some equivocal or marginally positive results, the active ingredient is considered to have minimal genetic toxicity potential.

12. ECOLOGICAL INFORMATION:

ENVIRONMENTAL FATE:

MOVEMENT & PARTITIONING:

Based largely or completely on information for active ingredient(s):

Bioconcentration potential is moderate (BCF is between 100 and 3000 or Log Pow between 3 and 5).

Expected to be relatively immobile in soil (Koc >5000).

Based largely or completely on information for major component(s):

Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

MATERIAL SAFETY DATA SHEET



Emergency Phone: 800-992-5994
Dow AgroSciences LLC
Indianapolis, IN 46268

Effective Date: 22-Apr-10
Product Code:108730

COBALT* INSECTICIDE

DEGRADATION & PERSISTENCE:

Based largely or completely on information for active ingredient(s):

Biodegradation under aerobic laboratory conditions is below detectable limits (BOD20 or BOD28/ThOD is <2.5).

Based largely or completely on information for major components:

Biodegradation under aerobic static laboratory conditions is low (BOD20 or BOD28/ThOD is between 2.5 and 10%).

ECOTOXICOLOGY:

Based largely or completely on information for active ingredient(s):

Material is very highly toxic to aquatic organisms on an acute basis (LC_{50} or EC_{50} <0.1 mg/L in the most sensitive species tested).

Material is moderately toxic to birds on an acute basis (LD_{50} is between 51 and 500 mg/kg).

Material is highly toxic to birds on a dietary basis (LC_{50} between 50 and 500 ppm).

Based largely or completely on information for major component(s).

Material is moderately toxic to aquatic organisms on an acute basis (LC_{50} or EC_{50} is between 1 and 10 mg/L in the most sensitive species tested).

Material is practically non-toxic to birds on an acute basis (LD_{50} is >2000 mg/kg).

Material is practically non-toxic to birds on a dietary basis (LC_{50} is >5000 ppm).

13. DISPOSAL CONSIDERATIONS:

DISPOSAL METHOD: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities.

This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

If the material as supplied becomes a waste, follow all applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION:

DOT Non-Bulk

Proper Shipping Name: FLAMMABLE LIQUID, N.O.S.
Technical Name: 1,2,4-TRIMETHYLBENZENE, XYLENE
Hazard Class: 3 **ID Number:** UN1993
Packing Group: PG III

DOT Bulk

Proper Shipping Name: FLAMMABLE LIQUID, N.O.S.
Technical Name: 1,2,4-TRIMETHYLBENZENE, XYLENE
Hazard Class: 3 **ID Number:** UN1993
Packing Group: PG III

IMDG

Proper Shipping Name: FLAMMABLE LIQUID, N.O.S.
Technical Name: 1,2,4-TRIMETHYLBENZENE, XYLENE
Hazard Class: 3 **ID Number:** UN1993
Packing Group: PG III
EMS Number: f-e,s-e
Marine pollutant.: Yes

ICAO/IATA

Proper Shipping Name: FLAMMABLE LIQUID, N.O.S.
Technical Name: 1,2,4-TRIMETHYLBENZENE, XYLENE
Hazard Class: 3 **ID Number:** UN1993
Packing Group: PG III
Cargo Packing Instruction: 618
Passenger Packing Instruction: 611

Additional Information

Reportable quantity: 3 lb – CHLORPYRIFOS

MARINE POLLUTANT (CHLORPYRIFOS)

15. REGULATORY INFORMATION:

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations.

MATERIAL SAFETY DATA SHEET



Emergency Phone: 800-992-5994
Dow AgroSciences LLC
Indianapolis, IN 46268

Effective Date: 22-Apr-10
Product Code:108730

COBALT* INSECTICIDE

U.S. REGULATIONS

SARA 313 INFORMATION: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	CONCENTRATION
1,2,4-Trimethylbenzene	95-63-6	6.0 – 30.0%
Xylene	1330-20-7	1.8 – 3.0%
Cumene	98-82-8	1.8 – 3.0%

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard
A delayed health hazard
A fire hazard

TOXIC SUBSTANCES CONTROL ACT (TSCA): All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

OSHA HAZARD COMMUNICATION STANDARD: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

STATE RIGHT-TO-KNOW: The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

CHEMICAL NAME	CAS NUMBER	LIST
Xylene	1330-20-7	PA1 PA3
1,2,4-Trimethylbenzene	95-63-6	PA1
Cumene	98-82-8	PA1 PA3
Chlorpyrifos	2921-88-2	PA1 PA3

PA1=Pennsylvania Hazardous Substance (present at greater than or equal to 1.0%).

PA3=Pennsylvania Environmental Hazardous Substance (present at greater than or equal to 1.0%).

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND): This product contains the following substance(s) listed as "Hazardous Substances" under CERCLA, which may require reporting of releases:

Chemical Name	CAS Number	RQ	% in Product
Xylene	1330-20-7	100 lb.	1.8 – 3.0%
Cumene	98-82-8	5000 lb.	1.8 – 3.0%
Chlorpyrifos	2921-88-2	1 lb.	30%

NFPA RATINGS:

Health 3
Flammability 2
Reactivity 0

16. OTHER INFORMATION:

MSDS STATUS: Revised Sections: 14 & 15
Reference: TIME*21706
Replaces RSSDS Dated: 04-Dec-07
Document Code: D03-350-003
Replaces Document Code: D03-350-002

The Information Herein Is Given In Good Faith, But No Warranty, Express or Implied, Is Made. Consult Dow AgroSciences for Further Information.