

MATERIAL SAFETY DATA SHEET

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Version 1.3

Section 1 - Product and Company Information

Product Name CHLOROTHALONIL PESTANAL
(1,3-DICYANTETRACHLORO BENZENE),
250 MG
Product Number 36791
Brand RIEDEL
Company Sigma-Aldrich
Street Address 3050 Spruce Street
City, State, Zip, Country SAINT LOUIS MO 63103 US
Technical Phone: 314 771 5765
Emergency Phone: 414 273 3850 Ext. 5996
Fax: 800 325 5052

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
CHLOROTHALONIL	1897-45-6	Yes

Formula C8Cl4N2
Synonyms 1,3-Benzenedicarbonitrile, 2,4,5,6-tetrachloro- *
Bravo * Bravo 6F * Bravo-W-75 * Chloroalnil *
Chlorothalonil * Chlorthalonil (German) *
Clortocaf ramato * Clortosip * DAC 2787 * Daconil
* Daconil 2787 * Daconil 2787 flowable fungicide
* Dacosoil * 1,3-Dicyanotetrachlorobenzene *
Exotherm * Exotherm termil * Forturf *
Isophthalonitrile, 2,4,5,6-tetrachloro- *
NCI-C00102 * Nopcocide * Nopcocide N-96 *
Nopcocide N40D & N96 * Sweep * TCIN * Termil *
Tetrachlorisofthalonitril (Czech) *
2,4,5,6-Tetrachloro-1,3-benzenedicarbonitrile *
2,4,5,6-Tetrachloro-3-cyanobenzonitrile *
2,4,5,6-Tetrachloro-1,3-dicyanobenzene *
Tetrachloroisophthalonitrile *
meta-Tetrachlorophthalodinitrile *
m-Tetrachlorophthalonitrile * m-TCPN * TPN
(pesticide)
RTECS Number: NT2600000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Harmful. Dangerous for the environment.
Limited evidence of a carcinogenic effect. Irritating to eyes,
respiratory system and skin. May cause sensitization by skin
contact. Very toxic to aquatic organisms, may cause long-term
adverse effects in the aquatic environment.
Target organ(s): Kidneys.

HMIS RATING

HEALTH: 3*

FLAMMABILITY: 0
REACTIVITY: 0

NFPA RATING

HEALTH: 3
FLAMMABILITY: 0
REACTIVITY: 0

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE

In case of contact, immediately wash skin with soap and copious amounts of water.

EYE EXPOSURE

In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

Section 5 - Fire Fighting Measures

FLASH POINT

N/A

AUTOIGNITION TEMP

N/A

FLAMMABILITY

N/A

EXTINGUISHING MEDIA

Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s): Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING

User Exposure: Do not breathe dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE

Suitable: Keep tightly closed.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

Safety shower and eye bath. Use only in a chemical fume hood.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Government approved respirator.

Hand: Compatible chemical-resistant gloves.

Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES

Wash thoroughly after handling.

Section 9 - Physical/Chemical Properties

Appearance	Physical State: Solid	
Property	Value	At Temperature or Pressure
Molecular Weight	265.89 AMU	
pH	N/A	
BP/BP Range	350 °C	760 mmHg
MP/MP Range	250 - 251 °C	
Freezing Point	N/A	
Vapor Pressure	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
SG/Density	N/A	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	N/A	
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Refractive Index	N/A	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.

Materials to Avoid: Strong oxidizing agents, Thiols, Heating to decomposition or contact with acids or acid vapors can liberate poisonous cyanide vapors.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Hydrogen chloride gas, Nitrogen oxides.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: Causes skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: Causes eye irritation.

Inhalation: Material is irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.

Ingestion: May be harmful if swallowed.

SENSITIZATION

Skin: May cause allergic skin reaction.

TARGET ORGAN(S) OR SYSTEM(S)

Kidneys.

SIGNS AND SYMPTOMS OF EXPOSURE

Exposure can cause: Nose bleeds. Skin rash. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

TOXICITY DATA

Oral

Rat

10000 mg/kg

LD50

Inhalation

Rat

310 mg/m³

LC50

Skin

Rat

> 2500 mg/kg

LD50

Oral

Mouse

3700 mg/kg

LD50

Intraperitoneal

Mouse

2500 UG/KG

LD50

Remarks: Behavioral:Somnolence (general depressed activity).

Behavioral:Muscle contraction or spasticity.

Oral

Dog
> 5000 mg/kg
LD50

Skin
Rabbit
> 10000 mg/kg
LD50

CHRONIC EXPOSURE - CARCINOGEN

Result: This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Species: Rat
Route of Application: Oral
Dose: 142 GM/KG
Exposure Time: 80W
Frequency: C
Result: Tumorigenic: Carcinogenic by RTECS criteria. Kidney, Ureter, Bladder: Kidney tumors.

IARC CARCINOGEN LIST

Rating: Group 2B

NTP CARCINOGEN LIST

Rating: Clear evidence.
Species: Rat
Route: Feed

CHRONIC EXPOSURE - MUTAGEN

Species: Human
Dose: 50 UMOL/L
Cell Type: lymphocyte
Mutation test: DNA damage

Species: Mouse
Dose: 120 UG/L
Cell Type: lymphocyte
Mutation test: Mutation in mammalian somatic cells.

Species: Hamster
Dose: 200 NMOL/L
Cell Type: ovary
Mutation test: DNA damage

Species: Hamster
Dose: 500 UG/L
Cell Type: ovary
Mutation test: Cytogenetic analysis

Species: Hamster
Dose: 2 MG/L
Cell Type: ovary
Mutation test: Sister chromatid exchange

Species: other fish
Route: Unreported
Dose: 1400 PPT/7D-C

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: Environmentally hazardous substances, solid, n.o.s.
UN#: 3077
Class: 9
Packing Group: Packing Group III
Hazard Label: Class 9
PIH: Not PIH

IATA

Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s.
IATA UN Number: 3077
Hazard Class: 9
Packing Group: III

Section 15 - Regulatory Information

EU DIRECTIVES CLASSIFICATION

Symbol of Danger: Xn N
Indication of Danger: Harmful. Dangerous for the environment.
R: 40 50/53
Risk Statements: Limited evidence of a carcinogenic effect. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S: 60 36/37 61
Safety Statements: This material and its container must be disposed of as hazardous waste. Wear suitable protective clothing and gloves. Avoid release to the environment. Refer to special instructions/safety data sheets.

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Harmful. Dangerous for the environment.
Risk Statements: Limited evidence of a carcinogenic effect.
Irritating to eyes, respiratory system and skin. May cause sensitization by skin contact. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.
US Statements: Target organ(s): Kidneys.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: Yes

DEMINIMIS: 1 %

NOTES: This product is subject to SARA section 313 reporting requirements.

TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

Section 16 - Other Information

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2004 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.