

ALFAAA13495

## p-Chloranil

### SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

**产品说明:**  
**Product Description:** 对四氯苯醌  
**p-Chloranil**

**Cat No. :** A13495  
**Synonyms** 2,3,5,6-Tetrachloro-2,5-cyclohexadiene-1,4-dione; 4-Chloranil  
**CAS No** 118-75-2  
**Molecular Formula** C6 Cl4 O2

**Supplier** Alfa Aesar  
 Avocado Research Chemicals, Ltd.  
 Shore Road  
 Port of Heysham Industrial Park  
 Heysham, Lancashire LA3 2XY  
 United Kingdom  
 Office Tel: +44 (0) 1524 850506  
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**Emergency Telephone Number** Call Carechem 24 at  
 +44 (0) 1865 407333 (English only);  
 +44 (0) 1235 239670 (Multi-language)

**E-mail address** uktech@alfa.com  
 www.alfa.com  
 Product Safety Department

**Recommended Use** Laboratory chemicals.  
**Uses advised against** No Information available

### SECTION 2. HAZARD IDENTIFICATION

**Physical State**  
 Powder Solid

**Appearance**  
 Yellow

**Odor**  
 Odorless

#### Emergency Overview

May be harmful if swallowed. Causes skin irritation. Causes serious eye irritation. Very toxic to aquatic life with long lasting effects.

#### Classification of the substance or mixture

Acute Oral Toxicity	Category 5
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Acute aquatic toxicity	Category 1
Chronic aquatic toxicity	Category 1

#### Label Elements

**Signal Word****Warning****Hazard Statements**

H303 - May be harmful if swallowed  
H315 - Causes skin irritation  
H319 - Causes serious eye irritation  
H410 - Very toxic to aquatic life with long lasting effects

**Precautionary Statements****Prevention**

P264 - Wash face, hands and any exposed skin thoroughly after handling  
P270 - Do not eat, drink or smoke when using this product  
P280 - Wear protective gloves/protective clothing/eye protection/face protection

**Response**

P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell  
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water  
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P332 + P313 - If skin irritation occurs: Get medical advice/attention  
P337 + P313 - If eye irritation persists: Get medical advice/attention  
P362 + P364 - Take off contaminated clothing and wash it before reuse

**Storage**

P403 - Store in a well-ventilated place

**Disposal**

P501 - Dispose of contents/ container to an approved waste disposal plant

**Physical and Chemical Hazards**

None identified.

**Health Hazards**

May be harmful if swallowed. Causes skin irritation. Causes serious eye irritation.

**Environmental hazards**

Very toxic to aquatic life with long lasting effects. Is not likely mobile in the environment due its low water solubility. Spillage unlikely to penetrate soil. The product is insoluble and sinks in water.

Toxic to terrestrial vertebrates.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Component	CAS No	Weight %
2,3,5,6-Tetrachloro-2,5-cyclohexadiene-1,4-dione	118-75-2	<=100

**SECTION 4. FIRST AID MEASURES****General Advice**

If symptoms persist, call a physician.

**Eye Contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

**Skin Contact**

Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

## p-Chloranil

**Inhalation**

Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

**Ingestion**

Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

**Most important symptoms and effects**

None reasonably foreseeable.

**Self-Protection of the First Aider**

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

**Notes to Physician**

Treat symptomatically.

**SECTION 5. FIRE-FIGHTING MEASURES****Suitable Extinguishing Media**

Water spray. Carbon dioxide (CO<sub>2</sub>). Dry chemical. Chemical foam.

**Extinguishing media which must not be used for safety reasons**

No information available.

**Specific Hazards Arising from the Chemical**

Do not allow run-off from fire-fighting to enter drains or water courses.

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**SECTION 6. ACCIDENTAL RELEASE MEASURES****Personal Precautions**

Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

**Environmental Precautions**

Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

**Methods for Containment and Clean Up**

Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal.

Refer to protective measures listed in Sections 8 and 13.

**SECTION 7. HANDLING AND STORAGE****Handling**

Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation.

**Storage**

Keep in a dry, cool and well-ventilated place. Keep container tightly closed.

**Specific Use(s)**

Use in laboratories

## p-Chloranil

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

## Control Parameters

## Legend:

X - Listed 'I' - Not Listed T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

## Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

## Exposure Controls

## Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

## Personal protective equipment

**Eye Protection** Goggles (European standard - EN 166)

**Hand Protection** Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Nitrile rubber	See manufacturers	-	EN 374	(minimum requirement)
Neoprene	recommendations			
Natural rubber				
PVC				

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

**Skin and body protection** Wear appropriate protective gloves and clothing to prevent skin exposure

**Respiratory Protection** No protective equipment is needed under normal use conditions.

**Large scale/emergency use** Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

**Small scale/Laboratory use** Maintain adequate ventilation

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

**Environmental exposure controls** Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance** Yellow  
**Physical State** Powder Solid

## p-Chloranil

Odor	Odorless	
Odor Threshold	No data available	
pH	3.5-4.5	100 g/L aq.sol
Melting Point/Range	290 °C / 554 °F	
Softening Point	No data available	
Boiling Point/Range	No information available	
Flash Point	> 100 °C / > 212 °F	Method - No information available
Evaporation Rate	Not applicable	Solid
Flammability (solid,gas)	No information available	
Explosion Limits	No data available	
Vapor Pressure	1 hPa @ 71 °C	
Vapor Density	Not applicable	Solid
Specific Gravity / Density	1.97	
Bulk Density	No data available	
Water Solubility	Insoluble	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Component	log Pow	
2,3,5,6-Tetrachloro-2,5-cyclohexadiene-1,4-dione	2.3	
Autoignition Temperature	400 °C / 752 °F	
Decomposition Temperature	> 295°C	
Viscosity	Not applicable	Solid
Explosive Properties	No information available	
Oxidizing Properties	No information available	
Molecular Formula	C6 Cl4 O2	
Molecular Weight	245.88	

## SECTION 10. STABILITY AND REACTIVITY

Stability	Stable under normal conditions.
Hazardous Reactions	None under normal processing.
Hazardous Polymerization	Hazardous polymerization does not occur.
Conditions to Avoid	Incompatible products.
Materials to avoid	Strong oxidizing agents. Strong bases.

**Hazardous Decomposition Products** Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Hydrogen chloride gas.

## SECTION 11. TOXICOLOGICAL INFORMATION

## Product Information

## (a) acute toxicity;

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
2,3,5,6-Tetrachloro-2,5-cyclohexadiene-1,4-dione	LD50 = 4 g/kg ( Rat )		LC50 = 2485 mg/m <sup>3</sup> ( Rat ) 4 h

(b) skin corrosion/irritation; Category 2

(c) serious eye damage/irritation; Category 2

(d) respiratory or skin sensitization;

## p-Chloranil

<b>Respiratory</b>	No data available
<b>Skin</b>	No data available
<b>(e) germ cell mutagenicity;</b>	No data available
<b>(f) carcinogenicity;</b>	No data available There are no known carcinogenic chemicals in this product
<b>(g) reproductive toxicity;</b>	No data available
<b>(h) STOT-single exposure;</b>	No data available
<b>(i) STOT-repeated exposure;</b>	No data available
<b>Target Organs</b>	None known.
<b>(j) aspiration hazard;</b>	Not applicable Solid
<b>Symptoms / effects, both acute and delayed</b>	No information available

## SECTION 12. ECOLOGICAL INFORMATION

<b>Ecotoxicity effects</b>	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.								
<b>Persistence and Degradability</b>	Not readily biodegradable								
<b>Persistence</b>	Persistence is unlikely.								
<b>Degradation in sewage treatment plant</b>	Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.								
<b>Bioaccumulative Potential</b>	Bioaccumulation is unlikely								
<table><tr><th>Component</th><th>log Pow</th><th>Bioconcentration factor (BCF)</th></tr><tr><td>2,3,5,6-Tetrachloro-2,5-cyclohexadiene-1,4-dione</td><td>2.3</td><td>No data available</td></tr></table>				Component	log Pow	Bioconcentration factor (BCF)	2,3,5,6-Tetrachloro-2,5-cyclohexadiene-1,4-dione	2.3	No data available
Component	log Pow	Bioconcentration factor (BCF)							
2,3,5,6-Tetrachloro-2,5-cyclohexadiene-1,4-dione	2.3	No data available							
<b>Mobility in soil</b>	Spillage unlikely to penetrate soil The product is insoluble and sinks in water Is not likely mobile in the environment due its low water solubility								
<b>Endocrine Disruptor Information</b>	This product does not contain any known or suspected endocrine disruptors								
<b>Persistent Organic Pollutant</b>	This product does not contain any known or suspected substance								
<b>Ozone Depletion Potential</b>	This product does not contain any known or suspected substance								

## SECTION 13. DISPOSAL CONSIDERATIONS

<b>Waste from Residues/Unused Products</b>	Should not be released into the environment. Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.
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## p-Chloranil

<b>Contaminated Packaging</b>	Dispose of this container to hazardous or special waste collection point.
<b>Other Information</b>	Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not let this chemical enter the environment.

## SECTION 14. TRANSPORT INFORMATION

Road and Rail Transport

<b>UN-No</b>	UN3077
<b>Proper Shipping Name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
<b>Technical Shipping Name</b>	(TETRACHLORO-P-BENZOQUINONE)
<b>Hazard Class</b>	9
<b>Packing Group</b>	III

IMDG/IMO

<b>UN-No</b>	UN3077
<b>Proper Shipping Name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
<b>Technical Shipping Name</b>	(TETRACHLORO-P-BENZOQUINONE)
<b>Hazard Class</b>	9
<b>Packing Group</b>	III

IATA

<b>UN-No</b>	UN3077
<b>Proper Shipping Name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
<b>Technical Shipping Name</b>	(TETRACHLORO-P-BENZOQUINONE)
<b>Hazard Class</b>	9
<b>Packing Group</b>	III

<b>Special Precautions for User</b>	No special precautions required
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## SECTION 15. REGULATORY INFORMATION

**International Inventories**

X = listed, China (IECSC), Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDL), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), Korea (KECL).

Component	The Inventory of Hazardous Chemicals (2015 Edition)	List of dangerous goods GB 12268 - 2012	TCSI	IECSC	EINECS	TSCA	DSL	PICCS	ENCS	ISHL	AICS	KECL
2,3,5,6-Tetrachloro-2,5-cyclohexadiene-1,4-dione	-	X	X	X	204-274-4	X	X	X	X	X	X	97-3-28

**National Regulations**

## SECTION 16. OTHER INFORMATION

## p-Chloranil

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<b>Prepared By</b>	Health, Safety and Environmental Department
<b>Creation Date</b>	22-Sep-2009
<b>Revision Date</b>	27-Feb-2023
<b>Revision Summary</b>	SDS sections updated: 14.

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**Training Advice**

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Chemical incident response training.

**Legend**

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**DNEL** - Derived No Effect Level

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**NOEC** - No Observed Effect Concentration

**PBT** - Persistent, Bioaccumulative, Toxic

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer  
Predicted No Effect Concentration (PNEC)

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**POW** - Partition coefficient Octanol:Water

**vPvB** - very Persistent, very Bioaccumulative

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**ATE** - Acute Toxicity Estimate

**VOC** - (Volatile Organic Compound)

**Key literature references and sources for data**

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet**