Chemical Information Sheet
Version 2.0 | March 2021

CHLOROPHENOLS

Other Names	Chlorinated Phenols

CAS Number	Substance
15950-66-0	2,3,4-trichlorophenol (2,3,4-TriCP)
933-78-8	2,3,5-trichlorophenol (2,3,5-TriCP)
933-75-5	2,3,6-trichlorophenol (2,3,6-TriCP)

List continued in "Additional Information"

May Be Found In

- Preservatives for textile and leather materials
- Pesticides
- Dyes
- Print pastes

Chlorophenols are a group of man-made chemicals that historically have been used as pesticides or converted into pesticides. Additionally, they are used as preservatives to protect leather and textile materials from fungi and bacteria during storage and transport. They have a strong, medicinal taste and smell.[1]

Uses in the Supply Chain

Chlorophenols are commonly used as pesticides, or converted into pesticides, and have historically been used as preservatives for textile and leather materials during storage and transport. Chlorophenols may also be present as impurities from the raw materials used in the production of dyes. Some chlorophenols are used as preservatives in print pastes. Chlorophenols can be produced and found in wastewater after bleaching processes with elemental chlorine for textiles or paper, as well as during disinfection of wastewater or drinking water.

Why Chlorophenols are Restricted

- Legislation in major markets around the world restricts the presence of some chlorophenols in finished products.
- Many apparel and footwear brands have banned the use of chlorophenols in production of their products.
- Some chlorophenols can be toxic to aquatic organisms above a certain exposure level and may cause long-term adverse effects in the aquatic environment.
- Some chlorophenols have been classified as endocrine disruptors, affecting estrogen levels and the thyroid. Although more research is needed, some agencies such as the EPA and the CDC consider some chlorophenols to be probable carcinogens.
- Above certain exposure levels, some chlorophenols are highly toxic by inhalation or skin contact.[1,2]

Sourcing Compliant Materials from Your Suppliers

- Contact your suppliers and explain that you require their manufactured materials to be compliant with the current AFIRM RSL limits.[3]
- Require suppliers to submit a confirmation of material compliance or a test report from a third-party laboratory.
- When materials are received, consider performing risk-based testing to ensure the current AFIRM RSL limits are met.
- Share this information sheet with your material suppliers so they have full visibility and understand your sourcing requirements.
- Pay special attention to natural textile and leather materials, since chlorophenols may be used as a preservative or pesticide.

Sourcing Compliant Formulations from Your Chemical Suppliers

- For all formulations, request SDS documentation that meets current GHS requirements.
- Contact your suppliers and explain that you require formulations to be compliant with current ZDHC MRSL limits whenever applicable.[4]
- Discuss with your chemical supplier whether any safer alternatives are available that are suitable substitutes for your production needs.
- Prior to procuring any formulation, the chemical properties must be reviewed to ensure that proper protective equipment, chemical storage facilities, facility engineering controls, and associated treatment/disposal facilities are appropriate for the chemical(s).
- Pay special attention to suppliers of chemicals used for preserving natural textiles and natural leather.

Safer Alternatives

- There are substances available that have been identified as safer alternatives and which may be suitable for your production needs. These substances are biocide preservatives and mold control products that do not contain chlorophenols.
- Any chosen alternative must be ZDHC MRSL compliant if applicable, and any alternative must be vetted by the brand you are working with prior to application, as different brands have different restrictions on biocides, as well as differing markets.
- Proper storage and transport management can prevent conditions that allow mold to grow and can minimize the need for preservative chemicals.

Additional Information

Visit ECHA's Candidate List of substances of very high concern to view dossiers for many restricted substances https://echa.europa.eu/candidate-list-table.

Western United Nations Economic Commission for Europe (UNECE) Exploration of Management Options for Pentachlorophenol https://unece.org/fileadmin/DAM/env/documents/2013/air/PCP.pdf

Continued list of CAS numbers and substance names from first page:

CAS Number	Substance
25167-83-3	Generic CAS number for TeCP Mixed Isomers
95-95-4	2,4,5-trichlorophenol (2,4,5-TriCP)
88-06-2	2,4,6-trichlorophenol (2,4,6-TriCP)
609-19-8	3,4,5-trichlorophenol (3,4,5-TriCP)
4901-51-3	2,3,4,5-tetrachlorophenol (2,3,4,5-TeCP)
58-90-2	2,3,4,6-tetrachlorophenol (2,3,4,6-TeCP)
935-95-5	2,3,5,6-tetrachlorophenol (2,3,5,6-TeCP)
87-86-5	Pentachlorophenol (PCP)

References

[1] Agency for Toxic Substances and Disease Registry (ATSDR). 1999. *Toxicological profile for chlorophenols* https://wwwn.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=941&tid=195

[2] Igbinosa, E., Odjadjare, E., Chigor,V., (March 2013) Toxicological Profile of Chlorophenols and Their Derivatives in the Environment: The Public Health Perspective. *The Scientific World Journal*, *2013* (Article ID 460215), 11 pages. doi:10.1155/2013/460215 http://dx.doi.org/10.1155/2013/460215

[3] Apparel and Footwear International RSL Management Group Restricted Substances List (AFIRM RSL) http://afirm-group.com/afirm-rsl/

[4] ZDHC Manufacturing Restricted Substances List (ZDHC MRSL) https://www.roadmaptozero.com/mrsl_online/