



## CHLORINATED BENZENES AND TOLUENES

**Other Names** Chlorobenzenes, Chlorinated Benzenes, Chlorotoluenes, Chlorinated Toluenes, Chlororganic Carriers

CAS Number	Substance
95-49-8	2-Chlorotoluene
108-41-8	3-Chlorotoluene
106-43-4	4-Chlorotoluene

*List continued in "Additional Information"*

**May Be Found In**

- Dye carriers and leveling agents
- Dyes and auxiliaries
- Textiles (especially polyester and polyester blends)
- Fumigants, biocides, insecticides, herbicides
- Optical brighteners

**Chlorinated Benzenes and Toluenes are a group of chlorinated aromatic hydrocarbons. They are typically used as intermediates in the synthesis of other chemicals as well as dye carriers and leveling agents. They may be present as impurities in chemical formulations of dyestuffs and solvents.**

### Uses in the Supply Chain

Within the apparel and footwear supply chains, chlorinated benzenes and toluenes are found in textile applications. They may be used as carriers during the dyeing process of synthetic fibers, especially polyester and polyester blends. Chlorinated benzenes and toluenes are also used as intermediates in the synthesis of other chemicals as well as solvents for dyestuffs and other chemical formulations with high melting points. Therefore, they may be present in materials as impurities as well.

### Why Chlorinated Benzenes and Toluenes are Restricted

- Legislation in major markets around the world restricts the presence of these substances in finished products.
- Leading apparel and footwear brands have banned the use of both chlorinated benzenes and toluenes in production of their products.
- Some chlorotoluenes and chlorobenzenes can be very toxic to aquatic organisms at certain concentrations and have the potential to bioaccumulate and bioconcentrate.
- Above certain levels, long-term exposure to some chlorotoluenes and chlorobenzenes may result in the development of various cancers.
- Above certain exposure levels, some chlorotoluenes and chlorobenzenes are toxic by inhalation or skin contact.
- Chemical hazard information for many chemicals can be found at the following external databases:
  - GESTIS Substance Database: [Here \(external link\)](#)
  - US National Library of Medicine: [Here \(external link\)](#)
  - US OSHA Occupational Chemical Database: [Here \(external link\)](#)

### Sourcing Compliant Materials from Your Suppliers

- Contact your suppliers and explain that you require their manufactured materials to be compliant with current AFIRM RSL limits.<sup>1</sup>
- Require suppliers to submit a confirmation of material compliance or a test report from a third-party laboratory.



## Chemical Information Sheet

Version 3.0 | March 2021

- 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 polyester and polyester-blended textiles since chlorotoluenes and chlorobenzenes are often used in dyestuffs for these materials.

### Sourcing Compliant Formulations from Your Chemical Suppliers

- For all formulations, request SDS documentation that meets current GHS requirements.
  - Ensure that no isomers of chlorotoluenes and chlorobenzenes are listed as ingredients.
- Contact your suppliers and explain that you require formulations to be compliant with current ZDHC MRSL limits whenever applicable.<sup>2</sup>
- 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).

### Safer Alternatives

For use as a dye carrier, there are environmentally friendly substitutes available. Some alternatives are based on aromatic esters or fatty alcohol polyglycol ethers. Any chosen alternative should be ZDHC MRSL compliant whenever applicable and meet specific brand requirements.

### Additional Information

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

CAS Number	Substance	CAS Number	Substance
32768-54-0	2,3-Dichlorotoluene	87-61-6	1,2,3-Trichlorobenzene
95-73-8	2,4-Dichlorotoluene	120-82-1	1,2,4-Trichlorobenzene
19398-61-9	2,5-Dichlorotoluene	108-70-3	1,3,5-Trichlorobenzene
118-69-4	2,6-Dichlorotoluene	634-66-2	1,2,3,4-Tetrachlorobenzene
95-75-0	3,4-Dichlorotoluene	634-90-2	1,2,3,5-Tetrachlorobenzene
2077-46-5	2,3,6-Trichlorotoluene	95-94-3	1,2,4,5-Tetrachlorobenzene
6639-30-1	2,4,5-Trichlorotoluene	608-93-5	Pentachlorobenzene
76057-12-0	2,3,4,5-Tetrachlorotoluene	118-74-1	Hexachlorobenzene
875-40-1	2,3,4,6-Tetrachlorotoluene	5216-25-1	p-Chlorobenzotrichloride
1006-31-1	2,3,5,6-Tetrachlorotoluene	98-07-7	Benzotrichloride
877-11-2	Pentachlorotoluene	100-44-7	Benzyl Chloride
541-73-1	1,3-Dichlorobenzene	95-50-1	1,2-Dichlorobenzene
106-46-7	1,4-Dichlorobenzene		

### References

<sup>1</sup> Apparel and Footwear International RSL Management Group Restricted Substances List (AFIRM RSL) <http://afirm-group.com/afirm-rsl/>

<sup>2</sup> ZDHC Manufacturing Restricted Substances List (ZDHC MRSL) [https://www.roadmaptozero.com/mrsl\\_online/](https://www.roadmaptozero.com/mrsl_online/)