



Short-chain chlorinated paraffins and Medium-chain chlorinated paraffins (SSCPs/ MCCPs)

Other Names: Chlorinated paraffins, SCCP, MCCP, Chloroalkanes

CAS Number	Substance
85535-84-8	Short-chain chlorinated paraffins (SCCP) (C10-C13)
85535-85-9	Medium-chain chlorinated paraffins (MCCP) (C14-C17)

Short Chain Chlorinated Paraffins (SCCPs) are a mixture of chlorinated hydrocarbons with a chain length of 10 to 13 carbon atoms, and a chlorine content of 40 to 70%. Medium Chain Chlorinated Paraffins (MCCPs) are a mixture of chlorinated hydrocarbons with a carbon chain length of 14-17, and the same chlorine content range of 40-70%. SCCPs are commonly used as flame retardants, plasticisers in polymers, and as lubricants or coolants for metal forming operations.

May Be Found In:

- Plastics
- Rubber
- Adhesives
- Paints and lacquers
- Coatings
- Plasticisers
- Fat-liquoring agents
- Leather
- Back-coatings in upholstery and household textiles as flame retardants

Uses in the Supply Chain

Within the textile, apparel and footwear industry, SCCPs and MCCPs may be used as flame retardants or plasticisers in plastics, rubbers, inks, paints, adhesives, and surface coatings. They also may be found as impurities in fat-liquoring agents in leather production.¹ Aside from their use in textile, apparel and footwear applications, SCCPs and MCCPs are used in metal operations as additives in lubricants or coolants used in cutting metal or metal forming.²

Why Short-chain chlorinated paraffins and Medium-chain chlorinated paraffins (SSCPs/ MCCPs) are Restricted

- Legislation in major markets around the world restricts the presence of SCCPs in final products.
- Leading apparel and footwear brands have banned the use of SCCPs in the production of their products.
- SCCPs are classified as a persistent organic pollutant (POP) and a very persistent and bioaccumulative substance. They are toxic to aquatic organisms at low concentrations and may cause long-term adverse effects in the aquatic environment at certain exposure levels, posing hazards to human health and the environment.
- SCCP's are on the REACH SVHC Candidate List.
- Repeated exposure to SCCPs or MCCPs may cause skin dryness or cracking and eye irritation but overall are considered to have low toxicity to humans.
- MCCPs are expected to be persistent and bioaccumulative in the environment as well, based on their similar chemical and physical properties to SCCPs. They are considered "toxic" by some agencies and have been targeted for risk assessments by other agencies.
- Chemical hazard information for many chemicals can be found in the following external databases:
 - GESTIS Substance Database: [http://gestis-en.itrust.de/nxt/gateway.dll/gestis_en/000000.xml?f=templates\\$fn=default.htm\\$vid=gestiseng:sdbeng\\$3.0](http://gestis-en.itrust.de/nxt/gateway.dll/gestis_en/000000.xml?f=templates$fn=default.htm$vid=gestiseng:sdbeng$3.0)
 - US National Library of Medicine: <https://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB>
 - USA EPA Occupational Chemical Database: <https://www.osha.gov/chemicaldata/index.html>

Sourcing Compliant Materials from Your Suppliers

- Explain that you require materials to be compliant with current AFIRM RSL limits.⁴
- Discuss with your supplier the proper and safe use of machine lubricants for maintenance. Certain lubricants might contain SCCPs and MCCPs and can cross-contaminate your products.
- Request suppliers to submit a confirmation of material compliance and/or a test report from a third-party laboratory. When materials are received, consider performing random, risk-based testing to ensure current AFIRM RSL limits are met.
- Share this guidance sheet with your material suppliers. Using the guidance in the next section, instruct them to work with their chemical suppliers to source chemical formulations that comply with these requirements. If needed, highlight the existence of harmful substances in materials via chemical management trainings from the ZDHC Academy, existing guidelines, and laws.
- Pay special attention to:
 - Textiles and natural or synthetic leather with polymeric coatings or finishes. SCCPs are common ingredients in coating and finishing formulations to provide flexibility.
 - Textile and plastic materials treated with a flame retardant finish.
 - Plastic components and prints may contain SCCPs as a plasticiser.
 - Natural leather products may contain residual SCCPs. They can be impurities in fat-liquoring agents used in leather production.
- Make sure all your suppliers have a solid chemical management system in place.

Sourcing Compliant Formulations from Your Chemical Formulators

- Explain to chemicals suppliers that you require chemical formulations to comply with current ZDHC MRSL limits.
 - Search for formulations on the ZDHC Gateway Chemical Module. If your preferred formulations are not listed, encourage providers to register their formulations.
 - Ask for a ZDHC ChemCheck report.
- For all formulations, request SDS documentation to ensure none of the CAS Numbers above are listed as ingredients.
- Chemical formulators who use SCCPs and MCCPs in their production for other customers may have contaminated machinery that can introduce these chemicals into their manufactured formulations. Work with chemical formulators who have phased out the use of SCCPs and MCCPs for all their customers.
- Discuss with your chemical formulators what safer alternatives are available that are suitable substitutes for your production needs.

Safer Alternatives

- There are numerous safer alternatives for different uses available on the market.
 - For more details refer to [http://chm.pops.int/Implementation/Alternatives/AlternativestoPOPs/ChemicalslistedinAnnexA/Shortchainchlorinatedparaffins\(SCCPs\)/tabid/5986/Default.aspx](http://chm.pops.int/Implementation/Alternatives/AlternativestoPOPs/ChemicalslistedinAnnexA/Shortchainchlorinatedparaffins(SCCPs)/tabid/5986/Default.aspx).
- The following substances have been identified as examples of safer alternatives and may be suitable for your production needs. Other safer substances exist in addition to this list. Any chosen alternative must be ZDHC MRSL compliant whenever applicable.
 - Non-chlorinated paraffin alternatives such as alkylphosphates and sulfonated fatty-acid esters are available for specific applications.
 - Natural animal, vegetable oils and/or mineral oil may be used as substitutes in leather production.³
 - Polyacrylic esters, diisobutyrate and phosphates may be used in paint and coating applications.
 - Aluminium hydroxide, antimony trioxide, acrylic polymers, and phosphate containing compounds can be used as flame retardant alternatives.

Additional Information

References

1 Hohenstein Institute & Textile Exchange. (2017). Chemical Snapshots – Short Chain Chlorinated Paraffins. Revision 0.2. Retrieved March 17, 2017.

2 United States Environmental Protection Agency. (2009, December 30). Short-Chain Chlorinated Paraffins (SCCPs) and Other Chlorinated Paraffins Action Plan. Retrieved April 18, 2017, from https://www.epa.gov/sites/production/files/2015-09/documents/sccps_ap_2009_1230_final.pdf.

3 UNEP/POPS/POPRC.5/10/Add.1 – General Guidance on Considerations Related to Alternatives and Substitutes for Listed Persistent Organic Pollutants and Candidate Chemicals
<http://chm.pops.int/Portals/0/download.aspx?d=UNEP-POPS-POPRC.5-10-Add.1.English.pdf>.

4 Apparel and Footwear International RSL Management Group (Ed.). (2018, January 31). Restricted Substances List (Rep.). Retrieved <http://afirm-group.com/afirm-rsl/>.

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