



Product Safety Summary for Very Long-Chain Chlorinated Paraffin/Olefin

Chemical Identity

Name: Very Long-Chain Chlorinated Paraffin/Olefin

Synonyms: Chlorinated Oils, vLCCP, vLCCO, CPAR

Chemical Formula: Paraffin: $C_nH_{2n+2-y}Cl_y$ $n = 21-34$ or $n = 22-30$
 Olefin: $C_nH_{2n+2-y}Cl_y$ $n = 24-28$

Carbon Chain	CPAR Product ID	Chlorine %	CAS Number	TSCA Inventory Name
vLCCP C21-34	W-40	43	1417900-96-9	Alkanes, C21-34-branched and linear, chloro
	W-45	47		
	W-50	48		
vLCCP C22-30	CPAR 70	70	1401974-24-0	Alkanes, C22-30-branched and linear, chloro
vLCCO C24-28	W-40AO	48	1402738-52-6	Alkanes, C24-28, chloro
	W-50AO	43		

General Uses and Applications

Chlorinated paraffins/olefins are a group of compounds with several important chemical properties, leading to their wide use in the metalworking, plastics, rubber, paints, and adhesives industries. In metalworking, they serve as an extreme pressure additive which increases lubrication properties at high temperatures and pressures, extending equipment life and reducing associated energy costs. The compounds are particularly important in this application due to the limited number of suitable alternatives in some metalworking environments. Other additives, for instance, are usually not as effective for stainless steels and very hard metals. Chlorinated paraffins/olefins are also used as a secondary plasticizer in the plastics industry, helping to increase the flexibility and durability of materials like PVC. Two other important characteristics of the compounds are their fire retardant and moisture repellant properties, which are useful in rubber, paints, and adhesives applications.

Physical/Chemical Properties

Chlorinated paraffins/olefins are classified by the number of connected carbon atoms that make up a molecule of the compound. These connected atoms are called carbon chains, and established categories of carbon chain length include short-chain (C10-13), medium-chain (C14-17), long-chain (C18-20), and very long-chain (C>20). A chlorinated paraffin/olefin is created by a chemical reaction which adds chlorine to these carbon chains, and the resulting physical and chemical properties of the product are largely dependent upon the amount of chlorine added. Chlorinated paraffin/olefin products generally increase in density and viscosity as more chlorine is added, and the chlorine concentrations usually vary between 40-70% by weight.

At the time of manufacture, either a paraffin or olefin raw material is chlorinated to produce a chlorinated paraffin. When olefins are chlorinated, the olefin functional group is eliminated and the product becomes a chlorinated paraffin. To enable customers to distinguish whether paraffin or olefin has been used as the raw material to produce the chlorinated paraffin, Qualice retains the olefin reference in its product trade names ("O") and on the product label and SDS.

Property	vLCCP	vLCCP (70% Chlorine)	vLCCO
Physical State	Liquid	Solid (Powder)	Liquid
Chlorine Concentration	43-48% (by weight)	70% (by weight)	43-48% (by weight)
Color	Clear, yellow to dark yellow	Off white-colored	Clear, yellow to dark yellow
Odor	Slight	None	Slight
Specific Gravity	1.11-1.24 g/cm ³	1.63 g/cm ³ @ 25°C	1.14-1.24 g/cm ³
Melting Temperature	n/a	120°C (Softening Point)	n/a
Boiling Temperature	>400°C	>400°C	>400 °C
Solubility in Water	<0.000005 g/l @ 20°C (Very low)	<0.0000066 g/l @ 20°C (Very low)	<0.000005 g/l @ 20°C (Very low)

Chlorinated paraffin/olefin compounds are virtually insoluble in water, stable under normal conditions, and are not considered reactive. Additional physical and chemical property information is available on the product Safety Data Sheet (SDS).

Health Effects

Chlorinated paraffins/olefins are of very low acute toxicity and do not have health hazards that require special first aid measures. The principal route of exposure is likely to be dermal, particularly during their use in metal-working fluids. The most important symptoms of health effects are listed below:

- Contact with eyes may cause slight irritation.

- Prolonged and/or repeated skin contact may result in mild irritation or redness.
- May cause slight irritation of respiratory tract.
- Small amounts (a tablespoonful) swallowed during normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.
- When products are handled at high temperatures, liquid contact may cause skin burns.

It is notable that in spite of the widespread use of chlorinated paraffins, there are no case reports of skin irritation or sensitization.

Exposure limits for chlorinated paraffins/olefins have not been established, and they are not listed or considered to be a carcinogen by the IARC, NTP, OSHA, or ACGIH. However, they should be handled in accordance with good industrial hygiene and safety practice.

Environmental Effects

Chlorinated paraffins/olefins are most commonly utilized in closed industrial systems, and when handled properly, environmental releases are not expected to occur. The most likely source of release, however, is during their use and disposal in metalworking applications. Because of their extremely low solubility in water, they are expected to be transported via particles in water and can be deposited in sediment. Very long-chain chlorinated paraffins/olefins have only been detected at very low levels in nature. If a spill should occur, measures must be taken to ensure that the product is cleaned up and not further released into the environment.

Exposure

Worker exposure can occur during any phase of the life-cycle chain of the product including manufacture, transport, use, and disposal, but exposure to chlorinated paraffins/olefins is not expected to result in any significant health effects (see Health Effects section above). Because of their low acute toxicity and exposure potential, a normal work attire of long-sleeved shirts and long pants is generally recommended to be worn when handling the product. Special ventilation and respiratory protection are not required under normal handling conditions.

When chlorinated paraffins/olefins are stored at high temperatures (about 150 °F) to remain in a liquid state prior to use in manufacturing, potential exposure to skin from contact with the heated material exists and must be controlled by following safe work practices.

Consumer exposure is unlikely because chlorinated paraffins/olefins are primarily used in industrial applications and not sold directly to the public.

Environmental releases are most likely to occur during dispersive uses (as in metalworking) and disposal of the product. Measures should be taken to ensure the control of release and spill potential.

Risk Management

The following risk management measures are recommended in order to reduce exposure potential:

- To prevent eye contact, protective eye wear must be worn.
- Clean clothing consisting of a long-sleeved shirt, long pants, and impervious gloves should be worn when handling the product.
- Under normal conditions of use, natural ventilation should effectively remove and prevent buildup of any vapor/mist/dust generated from the handling of this product.

Product Stewardship Programs

Qualice is active in a number of trade organizations, including the Chlorinated Paraffins Industry Association, in which regulatory, health, and safety information is readily disseminated and shared through presentations and other media.

Qualice provides regulatory, health, and safety information to customers and other stakeholders through regular contacts and by visiting customer sites to ensure safe practices are in use.

Regulatory Compliance

Regulations exist that govern the manufacture, transportation, usage, and/or disposal of chlorinated paraffins/olefins. These regulations may vary by city, state, country or geographic region. More information may be found by consulting the product Safety Data Sheet (SDS).

Additional information about chlorinated paraffins/olefins can be found at these websites:

[http://www.eurochlor.org/chlorinated-alkanes-\(casg\)/what-are-chlorinated-alkanes.aspx](http://www.eurochlor.org/chlorinated-alkanes-(casg)/what-are-chlorinated-alkanes.aspx)
<http://www.regnet.com/cpia/>

Conclusion

Chlorinated paraffins/olefins are a well-understood group of compounds with low human toxicity. They are useful in a number of important applications, and the main concern regarding the use of these products is their potential to persist in ecological systems if released to the environment.

Contact Information

For additional information, call Qualice Customer Service at (910) 419-6589.

Qualice, LLC
PO Box 1169
11 EV Hogan Drive
Hamlet, NC 28345-1195
customerservice@qualicellc.com

This Product Safety Summary is intended to provide a general overview of the chemical substance. The information on the Summary is basic information and is not intended to provide emergency response information, medical information, or treatment information. For in-depth safety and health information, refer to the product's Safety Data Sheet (SDS), the product's label, and other safe use and handling literature for the chemical substance.