

UNION CARBIDE®  
SILICONE OIL EMULSIONS

UNION CARBIDE Silicone Oil Emulsions provide an easy and convenient way to use silicone oils in aqueous systems or wherever water dilutions are required. Some are based on the different viscosity grades of UNION CARBIDE L-45 Silicone Fluids, which are dimethyl polysiloxanes. Others are based on

L-42, an organo-modified dimethyl silicone oil. These emulsions are designed for a wide variety of release, lubricant, and polish applications, which are detailed on the next page. Field experience under difficult conditions has demonstrated the excellent stability of these emulsions.

## TYPICAL PROPERTIES

Silicone Oil Emulsion	Nominal Active Material Percent by Weight	Nominal Viscosity of Contained Oil at 25° C., centistokes	UNION CARBIDE Silicone Oil in Emulsion	Emulsifier Type
FORMASIL Emulsion 45	35	350	L-45	Nonionic
LE-42	35	400	L-42	Anionic
LE-45	35	350	L-45	Nonionic
LE-46	35	10,000	L-45	Nonionic
LE-48	30	10,000	L-45	Nonionic
LE-410	35	400	L-42	Nonionic
LE-420	35	400	L-42	Nonionic
LE-453	50	150	L-45	Anionic
LE-460	35	1,000	L-45	Nonionic
LE-461	35	100	L-45	Nonionic
LE-462	35	1,500	L-45	Nonionic
LE-467	35	100,000	L-45	Anionic
LE-473	35	500	L-45	Nonionic
LE-474	35	200	L-45	Nonionic
LE-9300	40	6,000	Reactive Silicone	Nonionic
UCAR Emulsion AS	50	150	L-45	Anionic

NOTE: With the exception of LE-42, all are liquids at room temperature and are milky-white emulsions dilutable with water. The consistency of LE-42 is similar to that of cold cream.

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## APPLICATIONS

Silicone oil emulsions find use in a wide variety of applications. The following examples are illustrative:

**FORMASIL Emulsion 45** — A lubricating/release silicone emulsion for use in glass-forming machinery (e.g. shears, molds, and delivery equipment). Has FDA clearance for use in processing of some food packaging materials.

**LE-42** — Silicone lubricant for rubber marketing. Especially designed for the auto industry, LE-42 does not interfere with "touch-up" painting. Its creamy consistency makes it suitable for packaging in tubes.

**LE-45** — A widely used silicone emulsion. For cosmetics and a wide variety of release applications — including rubber, plastics, glass, and diecastings. An extremely stable emulsion for general use.

**LE-46** — An excellent tread lubricant in the "Bag-O-Matic" process for tire molding. Also useful as a release agent in plastic molding and as a textile and fiber lubricant.

**LE-48** — Silicone textile softener. Offers outstanding resistance to wet-soiling, and high durability toward washing and dry-cleaning.

**LE-410** — Lubricant for the extensible paper

process. FDA approves its use in processing paper for food packaging.

**LE-420** — Mold release agent where compatibility with organic materials is important. Allows subsequent finishing, gluing, labeling, or printing.

**LE-453** — General purpose emulsion of low viscosity silicone oil.

**LE-460** — Release agent for the shell molding process.

**LE-461** } For polishes and specialties.  
**LE-462** }

**LE-467** — Additive for aerosol spray starch and fabric finishes. Provides ironing ease and improvement of fabric hand. Also useful as lubricant and release agent in the rubber industry.

**LE-473** } Specifically designed to produce  
**LE-474** } gloss with a minimum of smear for specialty polishes.

**LE-9300** — Excellent lubricant for fibers and fabrics.

**UCAR Emulsion AS** — Provides lubrication and gloss when used in glass cleaners. Excellent stability in dilute alcohol.

## FDA STATUS

FORMASIL 45 and LE-410 are approved under FDA regulations §121.2526 and §121.2571 for use as components of the

uncoated or coated food contact surface of paper and paperboard in contact with fatty, aqueous and dry food.



### STORAGE AND HANDLING

UNION CARBIDE Silicone Emulsions are resistant to degradation by repeated cycles of freezing and thawing. They have excellent room-temperature shelf life and are stable for long periods under summer temperature storage conditions. Emulsions can be easily diluted with hard or soft water. Dilute emulsions (0.3 to 3 percent oil) are stable for long periods of time at room temperature and will stand up for several days at 175°F. (80°C.) without creaming. If such severe conditions

are encountered that creaming does occur, the emulsion can be re-constituted by mild agitation. A dilute emulsion is not broken by aeration such as might be encountered in pumping.

UNION CARBIDE Silicone Emulsions present no special corrosion problems, even when diluted with hard water. If the water (used to dilute the emulsion) introduces a corrosion problem, additional corrosion inhibitors may be used.

### TOXICOLOGICAL PROPERTIES

Based upon the known low toxicity of silicone oils and the low toxicity of the small amounts of surfactants in these emulsions, it is concluded that they will have a low order of toxicity. When swallowed, the emulsions should be less toxic than glycerine. They should not penetrate the skin in harmful amounts nor should they be skin or eye irritants. No harm is expected from breathing

of vapors.

These conclusions are supported by tests in animals made on silicone oil emulsions LE-42 and LE-453. In these tests the emulsions were practically non-toxic when swallowed. They did not penetrate the skin in harmful amounts or irritate the skin or eyes. Animals breathed saturated vapors of LE-42 and LE-453 for eight hours with no harm.

### PRECAUTIONARY LABELING

On the basis of the toxicological, physical, and chemical properties of UNION CARBIDE Silicone Oil Emulsions, no precautionary

labeling is used on the containers. These products are, however, intended *For Industry Use Only* and are so labeled.

## SHIPPING DATA

Subject to change without notice

	UCAR® AS	LE-9300	LE-42	LE-48	LE-45, LE-455 LE-46, LE-460 LE-410, LE-461 LE-420, LE-462 LE-450, LE-465 LE-452, LE-463 LE-453, LE-466 LE-467 LE-473 LE-474 FORMASIL® 45
Weight per Gallon at 25°C.....	8.32	8.26	8.23 lb.	8.23 lb.	8.23 lb.
Flash Point .....	None	None	None	None	None
Containers and Net Contents					
1-Gallon .....	8 lb.	8 lb.	7 lb.	8 lb.	8 lb.
5-Gallon .....	40 lb.	40 lb.	35 lb.	40 lb.	40 lb.
55-Gallon .....	440 lb.	440 lb.	400 lb.	460 lb.	440 lb.
DOT Warning Labels Required ..	None	None	None	None	None
Dangerous Article Description					
on Containers .....	None	None	None	None	None



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