



GLOBAL LEADER PROVIDING  
PERFORMANCE FLUIDS & LUBRICANTS

TECHNICAL DATA SHEET

# TMC-704 DIFFUSION PUMP FLUID

TMC-704 is chemically equivalent to Dow Corning® DC-704.

## PRODUCT INFORMATION

TMC-704 silicone diffusion pump fluid is a single-component, tetramethyl tetraphenyl trisiloxane, clear fluid developed for achieving deep vacuum levels of  $10^{-6}$  Torr (untrapped) and  $10^{-8}$  Torr (trapped). TMC-704 diffusion pump fluid is used by many aerospace, optical coating, glass, and vacuum heat-treating companies.

TMC-704 performs well in tough, rugged applications with quick pump-down, even after exposure to air at high temperatures. It is thermally and chemically stable, which keeps pump jets free of tars and hard carbon.

Due to its dielectric properties, it is also used effectively as a reliability test fluid for high-temperature ( $>400^{\circ}\text{F}$ ) applications using liquid-to-liquid thermal shock testing and as a fill fluid for chemical process control instruments.

## APPLICATIONS

- High-vacuum oil diffusion pumps

## FEATURES

- Superior oxidation, heat, and chemical resistance
- Does not crack under heat or when exposed to intake gas, unlike petroleum and fatty acid ester pump oils
- Does not emit oxidation gas
- Does not produce acid, tar, pitch, or other substances when the vacuum is broken during heating
- Enables prolonged and stable operation of vacuum pumps

## MATERIALS COMPATIBILITY

TMC-704 is compatible with most materials. Contact TMC for more information.

## PACKAGING

TMC-704 is available in the following sizes and weights:

- **1 Gallon Jug** — 8.9 lb / 4 kg
- **5 Gallon Pail** — 44 lb / 20 kg
- **55 Gallon Drum** — 440 lb / 200 kg
- **Sample** — 2.2 lb / 1 kg
- **275 Gallon Tote** — Available Upon Request

## SHELF LIFE & STORAGE

Shelf life is 5 years from the date of manufacture when stored in the original packaging materials and stored under normal conditions. TMC will re-certify material every 5 years up to 20 years.



## PHYSICAL & ENVIRONMENTAL PROPERTIES

PROPERTY	UNITS	TMC-704
<b>Form</b>	—	Liquid
<b>Color</b>	—	Colorless
<b>Odor</b>	—	Odorless
<b>Boiling Point</b>	°C	211
<b>Viscosity</b>	cSt	37
<b>Specific Gravity</b>	g/mL	1.065
<b>Molecular Weight</b>	g/mol	484
<b>Refractive Index</b>	—	1.555
<b>Surface Tension</b>	mN/m	33.9
<b>Flash Point</b>	°C	210

Not for specification purposes. All values @ 25°C unless otherwise specified.

## DISPOSAL & RECYCLING

This fluid can be recycled and reused. Help protect the environment and don't pay for expensive disposal services.

TMC Industries can reclaim your used fluorinated fluids, restoring them to like-new condition, and save you up to 50% in replacement fluids while protecting the environment.

TMC Reclaimed Fluids are tested to meet new product specifications. It will be clear and odorless, and a Certificate of Analysis is issued with every order.

TMC Industries offers a **100% satisfaction guarantee** on all our reclaimed fluids. We back this up with a no-questions-asked refund policy. To learn more, [click here](#).

## EXTERNAL DOCUMENTS

- [TMC Used Fluid Reclamation Service Brochure](#)

**Safety and Handling:** Before using this product, please thoroughly read the current product SDS and label, following all applicable safety precautions described therein (e.g., recommended storage and safe handling, appropriate exposure controls and personal protective equipment (PPE), addressing accidental spills, disposal considerations, etc.).

**Safety Data Sheet:** Consult Safety Data Sheet before use.

**Regulatory:** For regulatory information about this product, contact your TMC representative.

**Technical Information:** The technical information, recommendations and other statements contained in this document are based upon tests or experience that TMC believes are reliable, but the accuracy or completeness of such information is not guaranteed.

**Product Use:** Many factors beyond TMC's control and uniquely within user's control can affect the use and performance of a TMC product in a particular application. Given the variety of factors that can affect the use and performance of a TMC product, user is solely responsible for evaluating the TMC product and determining whether it is fit for a particular purpose and suitable for user's method of application.

**Warranty, Limited Remedy, and Disclaimer:** Unless an additional warranty is specifically stated on the applicable TMC product packaging or product literature, TMC warrants that each TMC product meets the applicable TMC product specification at the time TMC ships the product. TMC MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE

OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OR TRADE. If the TMC product does not conform to this warranty, then the sole and exclusive remedy is, at TMC's option, replacement of the TMC product or refund of the purchase price.

**Limitation of Liability:** Except where prohibited by law, TMC will not be liable for any loss or damage arising from the TMC product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.