

## TMC-40E

TMC-40E liquid is a colorless transparent perfluorinated chemical which is inert and has high dielectric strength and thermal conductivity. It also has low surface tension. It is mainly used in semiconductor manufacturing fabs as a heat transfer fluid. Its operating temp range is -57°C to 158 °C. It is primarily used in etching equipment, ion implantation equipment, testing and other equipment. Because TMC-40E is a single component, it resists degradation over time.

### Features

- 3RD PARTY TESTED, NO PFAS DETECTED
- EQUIVALENT TO 3M™ FC-40
- MISCIBLE WITH 3M™ FC-40
- COMPATIBLE WITH MOST METALS, PLASTICS AND ELASTOMERS
- RECLAIMABLE BY TMC INDUSTRIES, INC.
- NONFLAMMABLE
- RoHS COMPLIANT

### Packaging Information

*Sold in:*

- 1 gal. Bottle - 11 lbs. (5 kg)
- 5 gal. Pail - 44 lbs. (20 kg)
- 55 gal. Drum - 550 lbs. (250 kg)

### Properties

Boiling Point Range	156°C - 161°C
Appearance	Transparent Liquid
Molecular Weight	550
Color	Colorless
Flash Point	None
Dielectric Constant	3.82
Dielectric Strength	40KV
Surface Tension	12.63mN/m
Density	1.82g/ml
Vapor Pressure @ 25°C	4.6kPa
Pour Point	-55°C
Vapor Pressure - Temperature of liquids by Isoteiscope @ 37.78°C, ASTM D 2879, psia	0.077
Saturated Moisture Content	50ppm
Freezing Point, ASTM D 2386, °F	<-100
Melting Point, ASTM D87, °C	<-70
Specific Heat 25°C	1.509 J/g°C
Thermal Conductivity 25°C (W/mk)	0.0927
Dynamic Viscosity @ 40°C, ASTM D 7042, cP	3.905
Dynamic Viscosity @ 100°C, ASTM D 7042, cP	1.182
Kinematic Viscosity at -20°C, cSt, ASTM D 445.a, cSt	23.19
Kinematic Viscosity at 0°C, cSt, ASTM D 445.a, cSt	8.40
Kinematic Viscosity at 25°C, cSt, ASTM D 445.a, cSt	3.32

Kinematic Viscosity at 40°C, ASTM D 7042, cP	1.182
Residue of Evaporation, In-House, µg/mL	<10
Volume Resistivity @25°C	1.58* 10 <sup>11</sup>
Electric Resistivity	≥1.3x10 <sup>14</sup> Ω-mm
Heat of Vaporization	130J/g °C
Coefficient of Expansion	5.4x10 <sup>-3</sup> °C
CAS	86508-42-1
Perfluoro Compounds	C5-18
ODP	0
GWP	Low/175

## Applications

Electronic Testing, Gross Leak Testing, Heat Transfer, Dielectric Bath, Semiconductor Cooling, Thermal Shock Testing

TMC-40E Vapor Pressure

Temp °C	Vapor Pressure kPa
10	3.5
20	4.3
30	5.2
40	6.1
50	6.9
60	8.2
70	10.5
80	12.3
90	15.2
100	20

Distillation, ASTM D 86.b	Results
Initial Boiling Point, °C	149
5% Recovered, °C	154
10% Recovered, °C	154
15% Recovered, °C	155
20% Recovered, °C	155
30% Recovered, °C	155
40% Recovered, °C	156
50% Recovered, °C	156
60% Recovered, °C	157
70% Recovered, °C	157
80% Recovered, °C	157
90% Recovered, °C	158
99% Recovered, °C	159
Percent Recovery, %	99.0
Percent Residue, %	0.1
End Point, %	99.0
Loss, %	0.0

## Health & Safety

Before using this product, please read the current product Safety Data Sheet (available through your TMC Industries sales or technical service representative) and the precautionary statement on the product package. Follow all applicable precautions and directions. Electronic fluorinated liquid TMC-40E liquid is non-flammable and is highly resistant to thermal breakdown and hydrolysis in storage and during use. Recommended handling procedures are given in the Safety Data Sheet.

## Recycle and Reclaim Options

TMC Industries Inc. reclaim service provides significant savings over the cost of new fluid and helps protect the environment by drastically reducing the amount of your waste stream.

Reduce your hazardous waste disposal and achieve better environmental stewardship. TMC Industries, Inc. properly disposes of the contaminants.

## Quality Assurances

We guarantee our reclaimed solvents to have new qualities and performance capabilities. To support our confidence, pre- and post-processing analytical data accompanies each shipment.

## Save on Disposal Costs

Reduce your hazardous waste disposal. Have TMC Industries reclaim your contaminated fluids to their original state and purity and return them to you at about 1/3 the cost of replacing them with new fluids.



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