

Isopar™ fluids for personal care products

Energy lives here™



Isopar™ fluids are high purity, virtually odorless synthetic isoparaffinic fluids which can be used in personal care products. They are extensively used as a viscosity reducing agent for personal care products due to their compatibility with many non-polar ingredients and good spreadability properties. Isopar fluids are also recognized for their lack of color and narrow distillation range. These fluids may also be a cost effective alternative to other isoalkanes with comparable performance.

Physical and chemical properties

A broad portfolio of Isopar fluids is available to provide a range of viscosities and volatilities for greater formulation flexibility. Isopar C, Isopar E, Isopar G and Isopar H fluids have lower boiling ranges, allowing them to be used in personal care products that require fast to moderate drying rates. Isopar L and Isopar M fluids possess the advantage of a flash point of more than 60 °C, meaning they do not qualify as dangerous goods under DG Transport regulations.

Features of Isopar fluids

- Virtually odorless, with typical aromatic content $\leq 0.01\%$
- Low viscosity
- Narrow distillation range for a high degree of consistent quality, with predictable performance
- Compatible with most non-polar ingredients used in personal care
- Globally available

Physical and chemical properties

Key properties	Test Methods	Isopar C fluid ⁽¹⁾	Isopar E fluid ⁽¹⁾	Isopar G fluid ⁽²⁾	Isopar H fluid ⁽²⁾	Isopar L fluid ⁽³⁾	Isopar M fluid ⁽¹⁾
Distillation range, °C	ASTM D86	99-104 ⁽⁵⁾	115-140 ⁽²⁵⁾	162-177 ⁽¹⁵⁾	181-193 ⁽¹²⁾	185-198 ⁽¹³⁾	227-254 ⁽²⁷⁾
Aromatics content, wt%	AMS 140.31	<0.001	<0.002	≤0.001	≤0.001	<0.01	<0.01
Density@15°C, kg/dm ³	ASTM D4052/ ISO 12185 ¹	0.699	0.723	0.746 [†]	0.761 [†]	0.764	0.790
Kinematic viscosity@25°C, mm ² /s	ASTM D445	0.68	0.81	1.13	1.48	1.59	3.85
Evaporation rate, reference to n-BuAc = 100	Calculated	370	170	16	5.7	4.4	0.3
Flash point, °C	ASTM D56* / ASTM D93^ / Calculated	<0	4*	44*	60*	66^	97^
Aniline point, °C	ASTM D611	79	73	77	81	81	90
Colour, Saybolt	ASTM D156/ ASTM D6045 [#]	30	30	+30 [#]	+30 [#]	30	30

* Values in above table are typical values and do not constitute specification limits

⁽¹⁾Baytown typicals, ⁽²⁾Antwerp typicals, ⁽³⁾Singapore typicals

Source: Fluids at a Glance (typical properties 2015-Asia Pacific portfolio, typical properties 2014 Europe, Middle East & Africa portfolio, typical properties 2014-North America portfolio)

Purity

Isopar fluids are produced by an oligomerization or alkylation process from purified monomers, making them fully synthetic. Careful consideration is taken to ensure high purity is achieved during the treatment and separation process. Therefore, Isopar fluids typically contain extremely low levels of impurities such as benzene, sulfur, heavy metals and polyaromatic hydrocarbons (PAH).

Suitable for use in personal care products

Listed in the International Cosmetic Ingredient Dictionary and Handbook of the Personal Care Products Council (formerly the Cosmetic, Toiletry and Fragrance Association), Isopar fluids are suitable for use in cosmetic or other personal care products. Being soluble¹ in many non-polar ingredients such as cosmetic esters, natural oils and silicones, Isopar fluids give ease of formulation for various products.

International Nomenclature Cosmetic Ingredients (INCI) Name	
Products	INCI Name
Isopar C	C7-8 Isoparaffin
Isopar E	C8-9 Isoparaffin
Isopar G	C10-11 Isoparaffin
Isopar H	C11-12 Isoparaffin
Isopar L	C11-13 Isoparaffin
Isopar M	C13-14 Isoparaffin

Skin irritation potential

Some hydrocarbon solvents with a boiling range < 150°C or carbon number less than C-9, are classified as a "skin irritant" (H315). Other hydrocarbon solvents in the C9 through C19 range may cause skin defatting, resulting in skin dryness, flaking or cracking. Defatting represents a lower degree of harm compared to irritation, but could lead to irritation under specific exposure conditions (i.e. prolonged occlusive exposures).

In most personal care formulations, Isopar fluids are diluted to low concentrations, reducing the potential for adverse skin reactions, including skin defatting. In skin irritation tests conducted with Isopar fluids diluted to 50% in mineral oil or petrolatum, minimal evidence of adverse skin reactions is observed.

To avoid prolonged skin contact, Isopar fluids are generally recommended for semi-occlusive and non-occlusive applications. As classification and labeling rules may differ from country to country, please consult the safety data sheets of the ExxonMobil Fluids of interest at the following address: <http://www.msds.exxonmobil.com/IntApps/psims/psims.aspx?brand=xomcc>

¹ Tests under application conditions are required to confirm compatibility because individual members of each chemical family may differ.

©2018 ExxonMobil. ExxonMobil, the ExxonMobil logo, the interlocking "X" device and other product or service names used herein are trademarks of ExxonMobil, unless indicated otherwise. This document may not be distributed, displayed, copied or altered without ExxonMobil's prior written authorization. To the extent ExxonMobil authorizes distributing, displaying and/or copying of this document, the user may do so only if the document is unaltered and complete, including all of its headers, footers, disclaimers and other information. You may not copy this document to or reproduce it in whole or in part on a website. ExxonMobil does not guarantee the typical (or other) values. Any data included herein is based upon analysis of representative samples and not the actual product shipped. The information in this document relates only to the named product or materials when not in combination with any other product or materials. We based the information on data believed to be reliable on the date compiled, but we do not represent, warrant, or otherwise guarantee, expressly or impliedly, the merchantability, fitness for a particular purpose, freedom from patent infringement, suitability, accuracy, reliability, or completeness of this information or the products, materials or processes described. The user is solely responsible for all determinations regarding any use of material or product and any process in its territories of interest. We expressly disclaim liability for any loss, damage or injury directly or indirectly suffered or incurred as a result of or related to anyone using or relying on any of the information in this document. This document is not an endorsement of any non-ExxonMobil product or process, and we expressly disclaim any contrary implication. The terms "we," "our," "ExxonMobil Chemical" and "ExxonMobil" are each used for convenience, and may include any one or more of ExxonMobil Chemical Company, Exxon Mobil Corporation, or any affiliate either directly or indirectly stewarded.

Contact us for more information:
exxonmobilchemical.com

F0118-044E49

ExxonMobil
Energy lives here™