

Exxsol™ D Isopar™

**ExxonMobil**

# The clear choice in hydrocarbon fluids for metalworking

Energy lives here™



The more you know about metalworking formulations, the clearer the choice becomes.

Metalworking is a science



**Gone are the days when you could choose a hydrocarbon fluid simply because of its solvency power and cost. Today your business has too much at stake - your product performance, protection of employee and user health, and your environmental responsibilities.**

That is why you need a hydrocarbon fluids supplier that understands your business, your finished product performance requirements and the science behind metalworking.

#### **ExxonMobil understands**

- **The performance needs** of forming, blanking, drawing, stamping and punching fluids
- **Corrosion prevention and application requirements** of rust preventives
- **Compatibility requirements** with metals and other non-metal substrates
- **Economic factors**, such as machinery requirements, capital costs and operating costs
- **How to safely manage** flammable liquids

#### **Fluids for a clean future**

You also need a supplier that is able to help you and your customers meet increasingly strict safety, health and environmental requirements.

ExxonMobil is committed to helping you protect worker and end-user health and manage your environmental responsibilities. In fact, we are an industry leader in producing alternatives to traditional solvents such as white spirits and kerosene.

## Still using kerosene or white spirit?

### Using Exxsol™D and Isopar™ fluids is more effective and safer for workers.

Both kerosene and white spirit are straight-run refinery products with a high degree of variability. They contain sulfur, have an aromatic content as high as 30%, and are classified as "toxic to aquatic life with long lasting effects" under GHS classification.



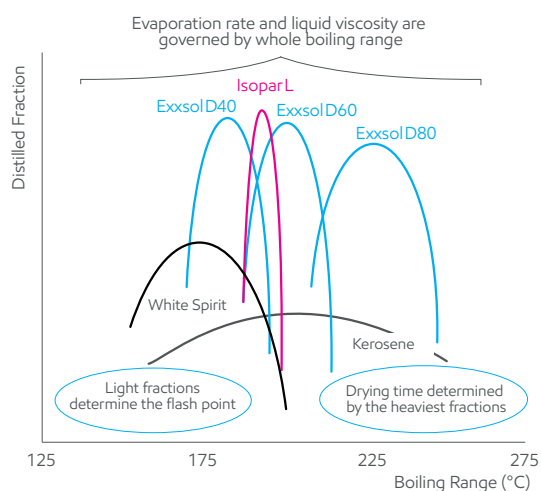
## Improve your metalworking formulations.

If supplying quality metalworking products is important to the success of your business, choose your hydrocarbon fluids carefully.

### Not all hydrocarbon fluids are the same

Some can stain the work piece, while some may not dry the way you need them to. Some may be foul smelling, and some may be highly flammable. ExxonMobil offers a range of high-quality fluids tailored for use in metalworking formulations. Our fluids help you inhibit corrosion, control friction, reduce tool wear and dissipate heat. They also exhibit lower toxicity, low odor and are not classified as dangerous for the environment under GHS classification. In addition to meeting and exceeding performance expectations, they can help you and your customers gain a competitive advantage by improving manufacturing processes and the quality and life-span of the goods produced.

### Narrow boiling range for optimized formulations



## Exxsol™ D fluids

High-performance fluids for metal forming and rust prevention formulations

Purified by a hydrogenation process, Exxsol™ D dearomatized fluids can effectively carry and dissolve active ingredients while helping to inhibit corrosion. Their low viscosity, solvency power and low surface tension combine to provide uniform spreading on metal parts.

Exxsol D dearomatized fluids are available in a range of grades. Rely on Exxsol D40, Exxsol D60 and Exxsol D80 fluids for easy tailoring of your formulations to achieve the preferred balance of drying times, viscosity, lubrication and safe operating conditions for your customer.



### Features

- Broad product portfolio offering a range of volatilities and viscosities for greater formulation flexibility
- Narrow distillation range, delivering consistent drying times
- High degree of quality consistency with predictable fluid performance
- Low aromatic content (<0.5%), delivering low odor, lower toxicity and excellent compatibility with elastomers
- Lower risk exposure than traditional hydrocarbon solvents (for example, at least four times lower than white spirit for Exxsol D40)
- Globally available



### Benefits

- Temporary protection against corrosion
- Improved worker protection and comfort
  - Significantly higher occupational exposure limits and lower risk of overexposure to vapor
  - Improved working environment
- Potential for reduced compliance costs
- May help meet increasingly tough safety, health and environmental requirements

Performance	ExxonMobil Fluids									Traditional Solvents	
	Exxsol D40			Exxsol D60			Exxsol D80			White Spirit	Kerosene
Odor*	30x less			30x less			30x less			Reference	Reference
Occupational Exposure Limit (mg/m³)	1200			1200			1200			300	200
Flash Point °C (typical)	48	44	41	65	64	65	81	83	78	42	36-59
Asia Americas Europe											
Boiling Range °C (typical)	167	161	155	186	190	185	206	207	204	155-193	154-249
Asia Americas Europe	191	199	192	213	211	215	238	237	238		
GHS Labeling for Environmental Hazards	None			None			None				

\*Scaled ED50 levels. Test methods available on request.

Source for OELs of Exxsol D fluids and white spirit (Varsol 40): RCP - TWA - ExxonMobil data. OEL for kerosene is ACGIH recommended.

# Isopar™ fluids

High-performance fluids for metal forming and rust prevention formulations

High-purity Isopar fluids are industry-leading synthetic isoparaffins. Virtually odorless, these fluids make your workplace more pleasant for employees. In addition to effective lubrication of metal parts, Isopar fluids provide temporary protection against corrosion during forming operations without damaging parts.

## Features

- Excellent product consistency
- High chemical and thermal stability
- Narrow distillation range for optimal compromise between flash point and drying time
- Virtually odorless, with an aromatic content less than 0.01%
- Significantly lower risk exposure than traditional hydrocarbon solvents (at least ten times lower than white spirit for Isopar L)
- Suitable for selected food-contact applications
- Globally available

## Benefits

Isopar fluids allow you to offer your customers:

- Optimum control of the forming process
- Improved worker protection and comfort
  - Significantly higher occupational exposure limits providing lower risk of overexposure to vapor
  - Improved working environment

## Isopar Forming Fluids

### Isopar G and Isopar H fluids

For faster-drying evaporable formulations

Isopar G and Isopar H are designed to evaporate fast, making them ideal choices for self-evaporable formulations such as vanishing oils / evanescent oils. Heat generated during metal forming is generally sufficient to evaporate Isopar G and Isopar H in a few seconds, typically eliminating any requirement for cleaning.

Isopar G and Isopar H enable very low viscosity formulations, permitting fast and uniform spreading on metal parts.

### Isopar L fluid



For a safe compromise of flash point, evaporation rate and low viscosity

Isopar L combines a flash point of >60 °C and low viscosity to help formulators develop forming fluids that spread fast and uniformly to efficiently protect metal parts. Its evaporation rate may be suitable for some self-evaporable formulations.

### Isopar M fluid

For low viscosity and higher flash point formulations

With a flash point of >80°C, Isopar M promotes a high level of operational safety and low viscosity for fast and uniform spreading on metal parts.

Performance	ExxonMobil Fluids			Traditional Solvents	
	Isopar L			White Spirit	Kerosene
Odor*	60x less			Reference	Reference
Occupational Exposure Limit (mg/m <sup>3</sup> )	1200			300	200
Flash Point °C (typical)	66	62	68	42	36-59
Asia Americas Europe					
Boiling Range °C (typical)	185	190	190	155-193	154-249
Asia Americas Europe	198	208	210		
GHS Labeling for Environmental Hazards	None				

\*Scaled ED50 levels. Test methods available on request.

Source for OELs of Isopar L fluid and white spirit (Varsol 40): RCP - TWA - ExxonMobil data. OEL for kerosene is ACGIH recommended.



## ExxonMobil puts science on your side

By choosing ExxonMobil, you gain access to expertise and a range of fluids relied on by the industry worldwide. Whether your products need to protect, lubricate, cool or flush during the metalworking process, you will find we have the right hydrocarbon fluid to meet your needs.



### Array of advantages

Our broad portfolio of Exxsol D and Isopar fluids are specifically designed for metalworking formulations, delivering a range of advantages:

- **For your products**
  - A range of volatilities and viscosities for greater formulation flexibility
  - Excellent compatibility with most metals and elastomers
  - Good spreading and wetting properties
  - Wide range of operating temperatures
  - Tailored solvency power
- **For your workforce**
  - Low odor to virtually odorless
  - Improved worker protection and comfort
  - No carcinogenic, mutagenic and reproductive toxicity labeling under GHS classification
- **For the environment**
  - Easy to recover and reuse
  - Wide selection of fluids not classified as "toxic to aquatic life with long lasting effects" under GHS classification

By selecting ExxonMobil fluids you're putting science to work on your toughest formulations challenges.

**ExxonMobil**  
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Contact us for more information:

[exxonmobilchemical.com](http://exxonmobilchemical.com)  
[exxsol.com](http://exxsol.com)  
[isopar.com](http://isopar.com)

F0815-873E49

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