

# Silwet™ Surfactants

## for Use in Firefighting Foams

**MOMENTIVE®**

Combustible liquid fires, including those that contain fuel, are extinguished most efficiently by aqueous film forming foam (AFFF) solutions.

To be effective, AFFFs must:

- Form a liquid film on top of the fuel to quickly cut off flammable vapors and oxygen from the flame,
- Spread across the surface of the combustible liquid,
- Quickly cool the liquid, and
- Prevent reignition of the fire.

### THERE'S SERIOUS SCIENCE BEHIND GETTING FIREFIGHTING FOAMS TO SPREAD ACROSS FUEL

It comes down to the spreading coefficient. In simple terms, it's the difference between the surface tension of the fuel and the interfacial tension between it and the firefighting liquid.

If the spreading coefficient is positive, the firefighting liquid will spread. If it's not, wetting will not be complete, and the fire can rage on unabated.

That means the surface tension of AFFFs must be as low as possible.

Historically, drastically reducing surface tension was a job for fluorinated surfactants, such as perfluoroalkyl surfactants (or PFAS), but these solutions have come under scrutiny due to environmental and human health concerns.

### NEXT GENERATION AFFF SOLUTIONS DEPEND ON SILICONE SURFACTANTS

AFFF formulators are now turning their attention to silicone surfactants, more specifically trisiloxane alkoxyates, which have shown exceptional performance in AFFF solutions, as well as spreading applications in the agriculture, coating, paints and textile industries.

Silwet surfactants can dramatically reduce aqueous surface tension, resulting in excellent spreading and stable foams with extended durability. All of this can be achieved with a fraction of the typical concentration levels of organic or fluorocarbon surfactants.

### KEY FEATURES & TYPICAL BENEFITS

- Lower surface tension compared to traditional organic surfactants
- Able to form stable foams that spread across low energy hydrocarbon surfaces, such as fuels
- Formulated without fluorine



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## TYPICAL PHYSICAL PROPERTIES

Surfactant	Surface Tension (mN/m) at 0.1%*	Viscosity (cSt) at ambient	Solution in water (0.1%)	Cloud Point (°C)
Silwet L-77™ silicone	20.5	20	Hazy	<10
Silwet L-7608 silicone	21.4	35	Hazy	<10
Silwet L-7609 silicone	23.0	100	Clear	60

\*Typical values at 25 °C with 0.1%(w/w) aqueous solutions using either Du Nouy Ring or Wilhelmy Plate Method  
Typical properties are average data and are not to be used as or to develop specifications.

## USE AND STORAGE

Silicone surfactants may be subject to hydrolysis under acidic or basic conditions.

Therefore, aqueous formulations with trisiloxane ethoxylates should be buffered to be near pH 7 to form stable solutions. The product should be stored at 5 - 35 °C in original, unopened containers, in a well-ventilated place.

## CONTACT INFORMATION

For product prices, availability, or order placement, contact our customer service by visiting [www.momentive.com](http://www.momentive.com) or emailing [commercial.services@momentive.com](mailto:commercial.services@momentive.com)

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