

Oilfield Emulsifiers: EnvaMul®

Overview

Through our chemical product offerings and technologies, Ingevity seeks to purify, protect and enhance the world around us. Our Oilfield Technologies products are used in the well services sector during drilling and life cycle management of oilfield wells. These products aid in the safe, reliable, and cost-effective development of oil and natural gas resources worldwide.

Uses and applications

EnvaMul® product lines are used primarily during the drilling and life cycle management of oilfield wells. One primary application is in the manufacturing and maintenance of drilling fluid systems. These drilling fluids remove cuttings from the wellbore, maintain wellbore stability, help control formation pressure, and lubricate, cool and support the drilling assembly.

Ingevity emulsifiers are used by qualified personnel at drill sites around the world. These additives may constitute less than 5% of the total drilling fluid. Even at these low dosages, these additives produce stable and effective drilling fluids, allowing service companies and drilling engineers to drill wells reliably and safely – including vertical and long horizontal sections.

Physical/chemical properties

Physical state: Liquid or dry powder.

Color: Amber to dark brown.

Odor: Bland to ammonia-like.

Flammability: Dependent on diluent package could be combustible liquid.

Health effects

Several well service additive chemistries can be either irritating or corrosive to the skin and eyes. In some cases, these chemistries may also exhibit skin sensitization and in others, respiratory tract irritation is possible. Dependent on the specific hazardous components and concentration, the health effects will vary. Safety data sheets (SDS) are provided to communicate the specific hazards associated with products to ensure appropriate handling.

Environmental effects

As shown in the exposure and risk management sections below, great care is taken to prevent environmental impact during the manufacture and use of the product by our customers. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels. In other cases, (product dependent), avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Exposure and risk management recommendations

Products are used by qualified personnel in secure manufacturing environments and are typically stored and used in closed systems such as bulk transport (*e.g.* tank trucks or railcars), bulk storage (*e.g.* stationary tanks), packages (*e.g.* drums or tote bins), piping systems and process tanks. These products or their chemical derivatives are transported by Department of Transportation-compliant means, typically to well sites and drilling fluid production facilities for use.

Used most commonly at concentrations below 5%, these additives are added during the manufacture and use of drilling fluids and provide the drilling fluid some of its rheological and performance attributes. Once prepared, the drilling fluid containing the additives is circulated down the drilling assembly and return up the drilled hole (annulus) throughout the drilling operation. These drilling fluids then pass through equipment at the surface

designed to remove drill cuttings. Service companies employ a number of techniques during the drilling operation to effectively contain these drilling fluids to the drilled well. These include casing and cementing the hole, blowout preventers, constant monitoring of the fluid levels, and many more.

In the drilling fluid manufacturing and during drilling, human and environmental exposure may come from airborne dust exposure to dry powder products, vapor exposure to liquid products in open systems, skin or other physical contact or ground and water contact as a result of handling or spills. At the well site, exposure may come as a result of physical contact with the drilling fluid.

To limit risk associated with human or environmental exposure, understand the hazards and risks associated with each product by reviewing the product SDS before use. Use engineering controls and personal protective equipment (PPE) that excludes exposure to the product wherever and whenever possible.

Use products in closed systems. Plan for spill containment and cleanup to include physical containment (*e.g.* diked areas, absorbent booms) and removal/disposal. Use adequate ventilation or vapor exclusion equipment to prevent vapor or dust exposure to the user.

Where engineering controls are unable to sufficiently reduce exposure risk, user PPE may be needed. Impermeable clothing, eye and face protection, and in rare cases, respiratory protection, may be necessary.

Users of the product should not eat, drink or smoke where chemicals are stored or in use. After use, wash hands and exposed skin with soap and water. If directly exposed to the product, follow the recommendations on the product SDS.

Conclusion

Under conditions of normal use by qualified personnel, the emulsifiers, offered by Ingevity's Oilfield Technologies group, are not expected to pose a significant risk to human health or the environment.

No warranties of use or otherwise are expressly made or implied from this information. Final determination of suitability of any material is the sole responsibility of the user. All material may present unknown hazards and should be used with caution.