

# Safe-Surf WN

Safe-Surf® WN displacement wash chemical is a blend of anionic and nonionic glucose-base surfactants, formulated to remove water-base drilling mud residue and oil film from casing, pipe and surface equipment.

This strong water-wetting cleaner helps displace mud and solids from tubulars to ensure a clean wellbore is obtained for the completion fluid displacement. Safe-Surf WN additive is readily biodegradable and is classified for discharge – CHARM 'Gold' Rating – in the UK.

## Typical Physical Properties

Physical appearance .....	Viscous liquid
Specific gravity .....	1.04 @ 20°C (68°F)
pH (conc.) .....	approx. 5.0
Flash point .....	Non-flammable
Pour point .....	< 0°C (32°F)
Viscosity .....	approx. 300cP @ 20°C (68°F) (Brookfield)

## Applications

Safe-Surf WN additive is used as a cleaning spacer between water-base mud and completion fluids. It is also used to clean surface equipment and as a rig wash. Safe-Surf WN additive is typically applied at 1 to 10% by volume, depending on the flow rate and degree of contamination.

Typical application during a wellbore displacement is 5 to 10% by volume. Surface cleaning is typically accomplished with a concentration of 2 to 5% by volume.

Safe-Surf WN additive is added directly to fresh water or drill water and can be added to hi-vis spacers as a water-wetting agent. As with any surfactant-base cleaner, efficient cleaning is best achieved at high flow rates.

Safe-Surf WN additive can also be used as an emulsifier in Direct-Mud-Emulsion (DME) drilling fluids. It can be added typically at 1 – 3% v/v in DMEs of 30/70 oil water ratio. Pilot testing is recommended for new applications.

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### Advantages

- UK 'Gold' CHARM Rating for Completions
- Readily biodegradable
- Not flammable
- No special handling required under normal use
- Effective at low concentrations
- Reduced aquatic toxicity
- Effectively removes water-base mud and oil film from equipment
- Field proven in synthetic and low-toxicity oil-base mud displacements
- Effective emulsifier for Direct-Mud-Emulsion drilling fluids

### Limitations

- Tendency to foam if subjected to continuous agitation
- Not compatible with calcium brines
- Avoid mixing in seawater
- Becomes viscous when stored at temperatures below 0°C (32°F)

### Toxicity and Handling

Bioassay information is available upon request.

Handle as an industrial chemical, wearing protective equipment and observing the precautions described in the Material Safety Data Sheet (MSDS).

### Packaging and Storage

Safe-Surf WN additive is available in 55-gal (208-L) drums.

Store in dry, well-ventilated area. Keep container closed. Keep away from heat, sparks and flames. Store away from incompatibles. Follow safe warehousing practices regarding palletizing, banding, shrink-wrapping and/or stacking.

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