PIPE-LAX ENV

PIPE-LAX ENV is a water-dispersible, low-toxicity spotting fluid designed to free differentially stuck pipe by penetrating between the wall cake and metal. PIPE-LAX ENV also offers strong metal wetting characteristics and may be used as a lubricant after incorporation into the active system.

Typical Physical Properties

Physical appearance	Light brown fluid
Specific gravity	1.02
pH (1% solution)	9.3
Flash point	190°F (88°C) (PMCC)
Pour point	-35°F (-37°C)

Applications

PIPE-LAX ENV is a single-package, lowtoxicity spotting fluid that has proven itself highly effective in offshore applications around the world. It may also be used for environmentally sensitive onshore wells where a low-toxicity, non-oil-base spotting fluid is specified.

Success in freeing differentially stuck pipe is greatest when the spotting fluid is applied as soon as possible after the pipe becomes stuck. A fluid that can be mixed and spotted quickly will often free the drillstring before fishing operations are required. Because PIPE-LAX ENV is a single-package, liquid blend made for fast mixing, it is ideal for spotting situations.

PIPE-LAX ENV contains no hydrocarbons, is compatible with most mud systems and may be used either weighted or unweighted in wells with differentially stuck pipe. If a density greater than 9 lb/gal (1.08 SG) is required, the PIPE-LAX ENV spot should be weighted with M-I BART or FER-OX.T If a density less than 9 lb/gal (1.08 SG) is required, PIPE-LAX ENV should be used “neat,” without dilution. Water should not be added to a PIPE-LAX ENV slurry for any reason; this will cause an undesirable increase in viscosity.

After being used as a spotting fluid, up to 3% by volume PIPE-LAX ENV may be incorporated into the active system to reduce torque and drag, and to reduce the possibility of differential sticking.

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Advantages

- Effective soak solution that quickly frees differentially stuck pipe.
- May be easily weighted with M-I BAR or FER-OX.
- Can be incorporated into most mud systems.
- Complies with present U.S. offshore bioassay toxicity regulations at concentrations up to 4%.
- Contains no hydrocarbons and is water dispersible.
- Aids in lubrication, and will reduce the coefficient of friction, thus improving the torque- and drag-reduction characteristics of the mud.
- Excellent stability at downhole temperatures and pressures.

Limitations

- Requires clean, dry tank for mixing.
- Water contamination results in an undesirable increase in viscosity.

MIXING PROCEDURE

1. Calculate the volume of spotting fluid required and add at least 10% to compensate for any washout. In addition, include 25 bbl (3.97 m3) to remain in the drillstring after initial displacement.
2. In a **clean, dry** tank, mix the required amount of PIPE-LAX ENV as determined from the Mixing Formulation chart. Supply adequate ventilation when opening containers and in enclosed areas when using PIPE-LAX ENV. Although some separation of materials may occur in the containers, transferring the product into a pit will blend the components, and product performance will not be affected.
3. If the slurry is to be weighted, add the correct amount of M-I BAR or FER-OX until thoroughly blended.
4. Displace the slurry to the zone where the differential sticking is suspected. Leave 25 bbl (3.97 m3) inside the pipe to displace at an hourly rate into the open hole.
5. Work the pipe while the spot is soaking. Periodically pump 1 to 2 bbl to assure that fresh soak solution is being displaced into the open hole.
6. Allow at least 24 hours for the PIPE-LAX ENV to free the stuck pipe. Unweighted spotting fluids are generally effective in a shorter period of time.

Note: When using PIPE-LAX ENV in deviated wells with angles greater than 35°, the spotting fluid should be weighted 0.5 lb/gal (0.06 SG) heavier than the original fluid in the well to encourage the spotting fluid to migrate to the lower side of the hole.

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Density (lb/gal)	Mixing Formulation (per final barrel)			
	PIPE-LAX ENV (bbl)	M-I BAR (lb)	PIPE-LAX ENV (bbl)	FER-OX (lb)
8.5	1.000	—	1.000	—
9.0	0.982	28	0.985	26
10.0	0.943	83	0.955	79
11.0	0.905	139	0.925	132
12.0	0.868	194	0.895	184
18.0*	0.642	526	0.714	500

*Higher density PIPE-LAX ENV formulations may develop high viscosity and become difficult to pump. This situation is aggravated by even small amounts of water contamination. For densities greater than 15 lb/gal (1.80 SG), LUBE-167E should be added to PIPE-LAX ENV formulations to reduce the final viscosity, then weighted to achieve the desired density.

Suggested dilution concentrations are as follows:

Density	**LUBE-167 (% by volume)**
15 – 16	5
16 – 17	10
17 – 18	15
>18	20

Note: Water contamination causes a significant increase in PIPE-LAX ENV viscosity. After cleaning, all mixing pump and mud lines should be drained and then filled with PIPE-LAX ENV before weighting up.

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TOXICITY AND HANDLING

Bioassay information is available upon request. Muds containing more than 4% by volume PIPE-LAX ENV should be tested to ensure bioassay toxicity compliance.
Handle as an industrial chemical, wearing protective equipment and observing the precautions as described on the Transportation and Material Safety Data Sheet (MSDS).
Supply adequate ventilation when opening storage containers or in enclosed areas when using PIPE-LAX ENV, especially at the shakers when circulating this fluid from the wellbore.

PACKAGING AND STORAGE

PIPE-LAX ENV is packaged in 55-gal (208.2-l) drums and is available in bulk.
Keep containers closed and firmly sealed. Store in a well-ventilated area, away from sources of ignition such as heat, sparks and open flames.

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