



EC-Z28-C

Corrosion Inhibitor Concentrate

EC-Z28-C is a highly formulated and very effective corrosion inhibitor intermediate. Besides excellent corrosion inhibition properties, **EC-Z28-C** is extremely cost effective. Formulated **EC-Z28-C** can be used in a wide variety of situations, including gas transmission, oil well production, wet gas and gas well treatments. In addition, **EC-Z28-C** can be formulated with other products, including foaming agents, demulsifiers, scale inhibitors, and paraffin treatment products.

| TYPICAL PHYSICAL PROPERTIES: | |
|---------------------------------|---------------------|
| Physical State: | Liquid |
| Density @ 60°F: | 7.8 to 8.2 lbs/gal. |
| Specific Gravity @ 60°F: | 0.94 to 0.98 |
| Flash Point (TCC): | 115°F |
| pH: | 5.0 to 6.5 |
| Pour Point: | 25°F |
| Viscosity: | <40 cP |
| Solubility in H ₂ O: | Soluble |
| Aromatic Solvent/Alcohol: | Soluble |
| Kerosene: | Insoluble |

EC-Z28-C is an 85% active by weight concentrate. The remaining 15% is methanol and IPA.

Most **EC-Z28-C** applications that require an injection rate of 30 to 60 ppm will be satisfied with a 10% to 20% active formulation. Formulated **EC-Z28-C** is applicable for any continuous injection program, sweet or sour (CO₂ or H₂S). In addition, **EC-Z28-C** formulations have been used effectively in sour gas fields containing more than 10% H₂S.

EC-Z28-C should be blended in either water or a high aromatic solvent such as HAN or xylene. If the solvent is less than 90% aromatic, or if water is used, some alcohol will be necessary to ensure a stable mixture. The solvent-formulated version is used primarily for capillary string injection, gas lift systems, and dry gas pipelines. The water-based version is used in all other applications, such as batch treating high fluid level pumping wells and power oil systems.

EC-Z28-C, and all respective formulations, should be stored in non-metallic containers.



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Corrosion Inhibitor Concentrate *Supplemental Information*

- **Oil Soluble Blending:** The aromatic content of the solvent should be greater than 90% to ensure a stable mixture. If a hydrocarbon solvent with less than 90% aromatics is used, it will be necessary to add IPA.
- **Water Soluble Blending:** Although the least expensive to blend, water-soluble formulations of **EC-Z28-C** do require the addition of 3% to 6% IPA. The recommended field strength formulation is 7% to 15% **EC-Z28-C**, 5% IPA, and water. When diluting the concentrate in water, some foaming will occur. It is recommended that the water and IPA be mixed first, then **EC-Z28-C** with minimal agitation. If possible, **EC-Z28-C** should be introduced below the liquid level. Regardless of the method of introducing **EC-Z28-C**, the product will mix readily with minimal agitation.
- **Typical Concentrations:** For oil and gas wells, only the most severe corrosion problems (such as erosion/corrosion and very low system pH) will require the 15% and higher activity. Applications with an injection rate of 30 ppm to 60 ppm will usually be satisfied with a 10% active product. All lab corrosion tests were conducted using a 15% active product. For pipelines, a concentration of 7% to 10% will normally treat most applications.
- **Partitioning:** In partitioning tests, 85% to 95% of the amine will partition to the water phase. The partitioning characteristics are similar for both the water- and hydrocarbon solvent-based versions. Since **EC-Z28-C** will partition and concentrate in the water phase, excellent protection is provided at the source of the problem. **EC-Z28-C** is extremely film persistent, performing very well in high velocity/high shear corrosion application tests.
- **Lab Testing:** Formulations of **EC-Z28-C** typically achieve 95%+ protection at 30 ppm or less in most corrosion tests (wheel, sparged beaker, partitioning, rotating cylinder electrode and flow loop).
- **Formulating:** **EC-Z28-C** has been successfully blended with other chemicals to produce "combination" products. For example, the hydrocarbon version can be blended with emulsion breakers, paraffin inhibitors and paraffin solvents. The water-based version can be blended with scale inhibitors and foaming agents. However, **EC-Z28-C** is highly reactive, and therefore does not blend readily with anionic chemicals. All blends should be lab tested for compatibility and long-term stability.
- **Reactivity/Storage:** **EC-Z28-C** will react with bare carbon steel to form a black precipitate. In addition, the reaction will turn the liquid purple. It is therefore very important to store **EC-Z28-C** in plastic rather than steel containers. The field strength product is much less reactive to bare carbon steel, however a residue can accumulate over time. Using lined or stainless steel tanks will eliminate this problem.
- **Odor:** **EC-Z28-C** has a strong mercaptan odor. This smell is diminished significantly in the field strength product.