# Oilfield Uses for Dow Chelating Agents

Chelating agents are used in several operations in the drilling, production, and recovery of oil. Metal chelates are used in $H_2S$ removal from drilling muds and in gas refining.

**Stimulation/Fracturing**
Iron precipitation can cause formation plugging during acidizing and fracturing processes. Ferrous iron ($Fe^{+2}$) is soluble up to a pH of 7.7 and typically is not a problem during acidizing procedures; however, above a pH of 2.2, Ferric iron ($Fe^{+3}$) precipitates as a gelatinous solid blocking the formation. VERSENE™ 100 Chelating Agent can be used in the acid to prevent the reprecipitation of $Fe^{+3}$. If high levels of chelating agent are required, the higher acid solubility of VERSENOL™ 120 Chelating Agent may make it the product of choice.

Fracturing fluids may be either acidic or basic in pH and may require protection against iron precipitation. Again, VERSENE 100 or VERSENOL 120 Chelating Agents may be used. VERSENOL 120 Chelant is preferred for $Fe^{+2}$ and $Fe^{+3}$ control above a pH of 8.0.

**Scale Removal and Prevention**
Hardness ion ($Ca^{+2}$, $Mg^{+2}$, and $Sr^{+2}$) scale can form on well casings from the brines normally coproduced with oil. In severe cases, this scale can block the formation and reduce production significantly. Iron scale is often mixed with hardness scale or may itself be sufficient to block formation outlets. EDTA or DTPA can be used to remove these scales. Use levels of EDTA or DTPA and conditions of optimum pH and/or temperature may be determined in the lab with the procedure given in the "Scale Removal and Prevention" brochure. Squeeze treatments with a solution of VERSENE 100 can help prevent scale formation.

**EOR (Enhanced Oil Recovery)**
Chelating operation agents find use in steam flooding operations.

In steam flooding, the primary use is as a boiler water treatment to prevent scale buildup from water hardness and iron contamination. Note: Boiler treatment is a coordinated program using a variety of chemicals which may include EDTA, but EDTA is never used by itself as the only treatment. Consult a boiler treatment specialist or water service company regarding chelants in this use area.

**$H_2S$ Abatement**
Contact Dow Oil and Gas to learn more about $H_2S$ abatement using chelation chemistry: **www.dowoilandgas.com**.

**For more information, contact us at your convenience:**

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