

OptiTherm*

a discussion in question and answer format

what is OptiTherm?

OptiTherm is a complete service for cleaning glass-lined steel reactor jackets—the only service of its kind that is safe, effective, and manufacturer-recommended. Proven in hundreds of applications worldwide, OptiTherm safely optimizes glass-lined reactors efficiency and profitability by effectively cleaning the reactor jacket.

who is SUEZ?

SUEZ is the world's preeminent supplier of engineered programs and specialty chemical treatments for water, wastewater, and process systems operating in a wide variety of industrial, commercial, and institutional applications. The company's highly specialized technical organization, industry expertise, advanced treatment technologies, and wide-ranging services are an unmatched resource for total, plant-wide solutions.

what are the benefits of OptiTherm?

OptiTherm has been proven in hundreds of applications throughout the world to safely and effectively increase glass-lined reactor efficiency an average of 15%, providing maximum return on your investment.

The OptiTherm service focuses on increasing your reactor efficiency and production, thereby improving system efficiency far beyond the cost of the service.

In addition to increasing efficiency, this complete service will help you:

- Lower maintenance and operating cost
- Reduce or eliminate unscheduled shutdown
- Restore heat transfer efficiency
- Increase production rates
- Improve product quality control
- Protect your valuable equipment

what makes the OptiTherm service different?

OptiTherm is a complete service package that maximizes reactor efficiency and productivity, provided by experts who specialize in cleaning glass-lined reactor jackets. The OptiTherm service covers all aspects of the cleaning, including: manpower, equipment, analysis, monitoring, vessel inspection, safe chemical treatment and jacket cleaning, and documentation of cleaning effectiveness. OptiTherm also uses patented Ferroquest* technology that eliminates the risk of glass damage, added corrosion, and flash rusting.

what is Ferroquest and why is it the safest method?

Ferroquest is the only safe and effective, manufacturer-recommended chemical for cleaning glass-lined reactor jackets. Ferroquest effectively cleans at a neutral pH, thereby eliminating any risk of ruining glass-lined reactors as a result of "spalling." All other low pH cleaning solutions create a serious potential for this type of glass damage. Ferroquest's neutral pH also keeps personnel from handling acid and caustic solutions. In turn, there is no hazardous waste disposal.

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damage to glass lining during acid cleaning (spalling)

See figure 1. The reactor wall is highly susceptible to hydrogen penetration during acid cleaning. Hydrogen concentrates at the glass/steel interface, building pressure and forcing the glass off the reactor wall (spalling), causing permanent damage.

how does the OptiTherm service prevent spalling?

Spalling is irreversible damage caused to the glass lining of a reactor, often as a result of acidic cleaning. During the acidic cleaning, hydrogen atoms (prevalent in any acidic solution) penetrate the steel reactor wall. These hydrogen atoms build at the glass-steel interface and combine to form the hydrogen molecule. A concentration of hydrogen molecules builds pressure under the glass and causes the glass to break, blister, or "spall." The OptiTherm process eliminates spalling potential because the entire process is completed at a neutral pH (6.5-7.5). No acid is involved, so no hydrogen atoms are available to cause the dangerous and costly spalling.

why does my reactor jacket need to be cleaned?

The jacket must be cleaned periodically to maximize reactor efficiency and to eliminate the potential for harmful under-deposit corrosion of reactor jacket walls. If deposits are not periodically removed, basic corrosion cells may develop and cause under-deposit pitting and corrosion, severely damaging the steel. This, in turn, will reduce the life expectancy of the equipment, reduce its pressure rating, and possibly create safety hazards. Additionally, a fouled reactor jacket can significantly reduce product quality. The jackets must be cleaned to optimize product quality, system efficiency, and long-term reactor reliability.

how can I learn more about OptiTherm?

To learn more about the OptiTherm service and how it can help you increase your glass-lined reactor efficiency, contact your local SUEZ Water Technologies & Solutions representative.

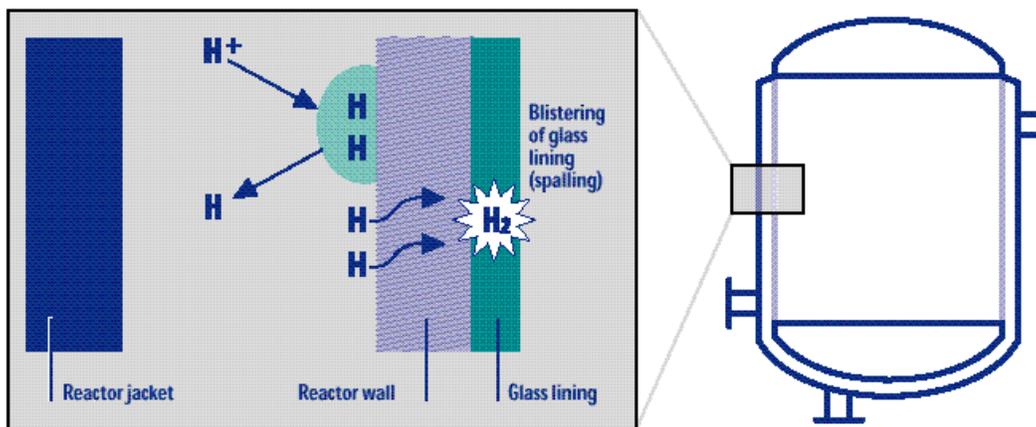


Figure 1 – Spalling