



TECHNICAL DATA

PARA-BAC™, PARA-BAC S™, PARA-BAC X™ PARA-BAC XX™ & PARA-BAC XXX™

FOR THE CONTROL OF PARAFFIN

General Description

Para-Bac is a proprietary combination of natural, facultative anaerobic biologicals and biochemical used in oil well operations to control paraffin chains of length C16 and above. Para-Bac can disperse, dissolve, and prevent paraffin deposition through its metabolic by-products, such as biosurfactants, organic acids, ketones, and alcohols. These same metabolic by-products also act to inhibit scale formation. The products are targeted to, but not limited to, solubilizing different length paraffin chains, described as follows:

Product PB PBX PBXX PBXXX

Chain C-16-22 C16-40 C40-58 C45-60+

These products are often used in combination for optimum performance.

Application of Para-Bac can result in cleansing of the formation face, production string, flowline, production vessels, and tanks. Para-Bac also increases the oil's ability to dissolve paraffin while decreasing its cloud point/pour point. Reservoir permeability in the wellbore region is also improved due to paraffin removal and biosurfactant production.

Product Specifications

Color	light pink to tan
pH	6.5-8
Weight per Gallon	8.51 lbs
Specific Gravity	1.02
Freeze Point	32°F
Viscosity	1.30 cps - 60°F
Odor	mild

Para-Bac comes as a ready-to-use liquid formulation and can be introduced to the well by batch or squeeze treatments. Batch treatments usually involve the product being applied to the annulus and flushed with clean lease or fresh water. For optimum performance, it is recommended that the well be shut in for one to three days after treatment however, this is not mandatory.

Treatment begins with an inoculation to establish the bacterial population of the well system. Thereafter, at predetermined intervals, maintenance dose of Para-Bac can be added to maintain the colony of bacteria.

Squeeze treatment applications are a function of fluid production, porosity, perforation interval, and desired depth of penetration. The well is shut in for three to seven days.

Handling and Safety

Para-Bac meets EPA requirements for release into the environment. Special clothing or equipment are not required for handling Para-Bac. Routine sanitary hygiene practices should be observed.

Shipping

Para-Bac is shipped in two sizes, in 5 gallon containers (45 lbs), and in 55 gallon containers (495 lbs), F.O.B. Round Rock, Texas.

Services

As part of a complete treatment program Micro-Bac International, Inc.® provides technical support services to its customers.

Application