

采油用表活类驱油剂

Surface active oil displacement agents for oil extraction



产品概述

本品外观一般呈无色至淡黄色的可自由流动的均匀液体。

采油用表活类驱油剂是一类具有两亲结构的化学物质，通常由亲水基和疏水基（也称亲油基）两部分组成，亲水基一般由长链烃基构成，主要以碳氢基团为主，亲油基是带电的离子基团和不带电的极性基团。这种结构使得表面活性剂能够在油水界面上吸附，降低油水界面张力，从而改善驱油效果。

性能特点

可有效降低油/水界面张力，提高洗油效率；
能够适应高温高盐环境；
可有效提高原油采收率；
具备多种应用方式，使用安全方便；
具有生物降解、不含有机溶剂，产品安全环保。

技术指标

表 1 驱油用表面活性剂技术要求

项目	指标	
外观	均匀液体，无刺激性气味	
pH 值	6.0~9.0	
水溶性	溶解均匀，不分层，无絮凝、沉淀	
固含量，	≥45.0	
有机氯含量/%	0.0	
界面张力/ (mN/m)	浓度 0.1%	≤9.9×10 ⁻³
	浓度 0.3%	≤5.0×10 ⁻³
静态吸附后界面张力/ (mN/m)	≤9.9×10 ⁻³	
抗钙能力 (Ca ²⁺ 浓度增加量 100mg/L) / (mN/m)	≤8.0×10 ⁻³ ，无沉淀	
洗油率，%	≥40.0	
与聚合物的配伍性	界面张力/ (mN/m)	≤9.9×10 ⁻³
	黏度保留率/%	≥95.0
热稳定性 (30d 后界面张力) / (mN/m)	≤9.9×10 ⁻³	

注：与目标区块聚合物配合使用时，须检测“与聚合物的配伍性”。

表 2 模拟地层砂成分组成表

材料	石英砂				高岭土
	550m~380m	380m~250m	250m~180m	180m~150m	
质量/g	40.0	50.0	90.0	100.0	30.0

产品用途

采油用表活类驱油剂的主要用途包括提高采油效率、降低原油与水之间的界面张力、减少岩石对原油的吸附作用、防止沉积和堵塞、降低稠油粘度、提高热采效果等。

【用法及用量】

本产品的推荐加量一般在 0.2%~0.5%，或根据现场情况确定用量。

包装与贮存

【包装】本产品一般用铁桶或塑料桶包装，可分净重 1000kg 吨桶和净重 200kg、25kg 的不同规格，也可根据客户要求定制包装，运输过程中应轻装轻卸、避免碰撞、切勿倒置。

【存储条件】本产品应储存于干燥、阴凉、通风的库房，远离火种和热源，避免阳光直射和暴晒。

【保质期】1 年。



Product Overview

This product generally appears as a colorless to pale yellow, freely flowing, uniform liquid.

Surface active displacement agents for oil extraction are a class of chemical substances with amphiphilic structures, usually composed of hydrophilic and hydrophobic groups (also known as oleophilic groups). Hydrophilic groups are generally composed of long-chain hydrocarbon groups, mainly consisting of hydrocarbon groups, while oleophilic groups are charged ionic groups and uncharged polar groups. This structure enables surfactants to adsorb at the oil-water interface, reducing interfacial tension and improving oil displacement efficiency.

Characteristics

It can effectively reduce the interfacial tension between oil and water and improve the efficiency of oil washing;

Capable of adapting to high temperature and high salt environments;

Can effectively improve crude oil recovery rate;

Having multiple application modes, safe and convenient to use;

It is biodegradable, free of organic solvents, and the product is safe and environmentally friendly.

Technical Specification

Table 1 Technical Requirements for Surfactants Used in Oil Displacement

project	indicator
appearance	Uniform liquid, no irritating odor
ph value	6.0~9.0
water-soluble	Dissolve evenly, without layering, flocculation or precipitation
Solid content,	≥45.0
Organic chlorine content/%	0.0
Interface tension/(mN/m)	Concentration 0.1%
	Concentration 0.3%
Interface tension after static adsorption/(mN/m)	≤9.9×10 ⁻³
Calcium resistance (Ca ²⁺ concentration increase of 100mg/L)/(mN/m)	≤ 8.0 × 10 ⁻³ , no precipitation
Oil washing rate, %	≥40.0
Compatibility with polymers	Interface tension/(mN/m)
	Viscosity retention rate%
Thermal stability (interfacial tension after 30 days)/(mN/m)	≤9.9×10 ⁻³

Note: When used in conjunction with the target block polymer, the compatibility with the polymer must be tested.

Table 2 Composition of simulated formation sand

material	quartz sand				kaolin
	550m~380m	380m~250m	250m~180m	180m~150m	
Quality/g	40.0	50.0	90.0	100.0	0

Applications

The main uses of surfactants for oil recovery include improving oil recovery efficiency, reducing interfacial tension between crude oil and water, reducing rock adsorption on crude oil, preventing sedimentation and blockage, reducing heavy oil viscosity, and improving thermal recovery efficiency.

【Usage and Dosage】

The recommended dosage for this product is generally between 0.2% and 0.5%, or the dosage can be determined based on on-site conditions.

Package and Storage

【Packaging】This product is generally packaged in iron or plastic drums, and can be divided into different specifications of net weight 1000kg ton drums, net weight 200kg, and 25kg. Packaging can also be customized according to customer requirements. During transportation, it should be loaded and unloaded gently, avoid collisions, and do not invert.

【Storage conditions】This product should be stored in a dry, cool, and ventilated warehouse, away from fire and heat sources, and avoid direct sunlight and exposure.

Shelf life: 1 year.



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