



宏达力生物化工-专业的絮凝剂生产基地

针对高致密油气厂压裂过程中对减阻剂和稠化剂的要求我公司所研发和生产的稠化剂具有一剂多用的功能，实现了在压裂过程中低浓度减阻，高浓度携砂的目的，在长庆油田苏里格气田压裂广泛使用并起到高抗盐，快速起粘可连续混配的技术特点。

According to the requirements of drag reducer and thickener in the fracturing process of high-density oil and gas plant, the thickener developed and produced by our company has a multi-purpose function, which realizes the purpose of low concentration drag reduction and high concentration sand carrying in the fracturing process. It is widely used in the fracturing of Sulige gas field in PCOC Oilfield and has the technical characteristics of high salt resistance, rapid viscosity and continuous mixing.

HDL 生产和研发用于现场的抗盐型稠化剂:

HDL production and development of thickener for field use

产品名称 Product description	减阻率 (%) Reduction	表观粘度 Apparent viscosity	PH 值 PH-value	表面张力 surface tension	配伍性 Compatibility	抗盐效果 Salt resistance effect
HDCH-979	>70	浓度 2%，25 摄氏度， ≥150 (concentration 2%, 25 °C), ≥150mpa.s	5-8	≤32	无分层沉淀 No stratification	有抗盐功 效 Salt resistant

HDL 所研发和生产的抗盐性稠化剂的主要特点有:

- 根据现场的情况，提供适应于不同矿化度下的配液需求。
- 添加量低，溶解速度快，粘度高，减阻率大于 70%
- 提高其耐盐性和耐温性，对矿化水尤其是多价金属离子敏感，避免盐水溶液中的黏度锐减，导致沉淀
- 根据客户的要求可均衡调节，即低浓度减阻，高浓度携砂



The main characteristics of the salt resistant thickener developed and produced by HDL are as follows:

- According to the situation of the site, provide liquid preparation requirements suitable for different mineralization degrees.
- Low addition, fast dissolution, high viscosity and drag reduction rate more than 70% improve its salt resistance and temperature resistance, be sensitive to mineralized water, especially multivalent metal ions, and avoid sharp decrease of viscosity in brine solution,



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resulting in precipitation

- It can be adjusted evenly according to the requirements of customers, i.e. drag reduction with low concentration,
- High concentration sand carrying

经过 HDL 研发和改良的聚丙烯酰胺类稠化剂在增稠，耐酸，高温稳定，耐剪切及抗盐有特别的效果，其中阳离子高分子聚合物具有较好的抗盐性，对抗温性，在酸中部分链节有较强的稠化作用。同时，酸液中的其他添加剂有良好的配伍性。因此，抗盐聚合物在溶液中的增粘能力强，矿化度的变化对抗盐性稠化剂的影响较小抗盐性能大大优化。高分子量聚丙烯酰胺，将成为新一代三次采油用的高聚合物。



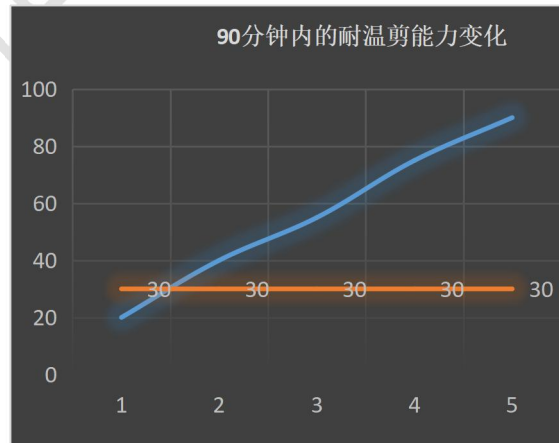
The polyacrylamide thickener developed and improved by HDL has special effects in thickening, acid resistance, high temperature stability, shear resistance and salt resistance. The cationic polymer has better salt resistance and temperature resistance, and has strong thickening effect on some chain links in the acid. At the same time, other additives in the acid solution have good compatibility. Therefore, the salt resistant polymer has strong viscosity in solution, the change of salinity has little effect on the salt thickener, and the salt resistance is greatly optimized. High molecular weight polyacrylamide will become a new generation of high polymer for tertiary oil recovery.

产品性能数据:

HDL 生产的抗盐性稠化剂通过现场的测试，在 90 分钟内，抗盐性稠化剂的耐温剪的变化稳定的维持在 $\geq 30\text{mPa}\cdot\text{s}$

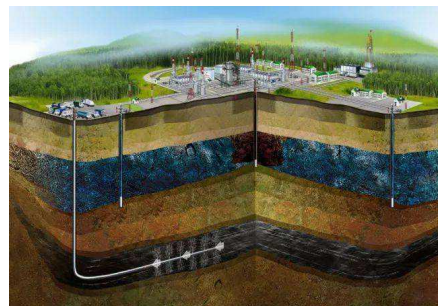
Product performance data:

The salt resistant thickener produced by HDL has passed the field test. Within 90 minutes, the change of temperature and shear resistance of salt resistant thickener is stable at $\geq 30\text{MPa}\cdot\text{S}$



在当今充满挑战的世界形势下，我们作为一家专业的絮凝剂研发机构和制造商，对客户承担很多的责任，HDL 集团承诺，并抑制秉承：

- ◆ 尽可能降低生产成本提高客户的经济效益
- ◆ 在不损害环境，健康和标准的前提下不断提高产品质量
- ◆ 在产业链整合和地区多样方面都保证安全可靠的供应





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In today's challenging world situation, as a professional flocculant R & D institution and manufacturer, we take a lot of responsibilities to our customers. HDL group promises and restrains the following:

- reduce the production cost as much as possible and improve the economic benefits of customers.
- Continuously improve product quality without damaging environment, health and safety standards.
- ensure safe and reliable supply in terms of industrial chain integration and regional diversity.