

CenerTech

Oilfield Chemical Services

1. Overview

The Company has committed to the development and application of oilfields and provision of full support involving technical research, product development, production and supply and personnel services to various chemical and engineering problems arising from the development and production of oil & gas fields. Besides, the company is capable of providing comprehensive solutions to oilfields based on the rich experience and reliable development foundation.



2. Key Clients



| | | | | | |
|----|---|----|--|----|---|
| 1 | CNOOC (China) Co., Ltd. | 12 | CNPC Jilin Oilfield Company | 23 | Catering & Support Services Co. |
| 2 | ConocoPhillips China Inc. | 13 | SPT Energy Group | 24 | CACT Operators Group |
| 3 | Offshore Oil Engineering Co., Ltd. | 14 | CNOOC Energy Technology & Services-Oilfield Construction Engineering Co., Bohai Equipment Technical Service Co., | 25 | Panyu Operation Company |
| 4 | Kerr-McGee China Petroleum Ltd. | 15 | Pan-China Resources Ltd. | 26 | ConocoPhillips Operation Company |
| 5 | Oil Production Services Co., | 16 | Qingdao Seawater Corrosion Research Center | 27 | CNOOC China Limited Shenzhen Branch |
| 6 | Bohai Oil Material Supply Company | 17 | Tianjin Geothermal Exploration and Development-designing Institute | 28 | CNOOC China Limited Shenzhen Branch/Panyu 30-1 Gasfield |
| 7 | Beijing Research Center | 18 | Shenzhen KAITE Chemical Technology Co., | 29 | CNOOC China Limited Shenzhen Branch/Xijiang 23-1 Oilfield |
| 8 | BZ Operation Company | 19 | Tianjin Hengpeng Petroleum Technical Service Co., | 30 | Shenzhen Weisheng Offshore Oil Technology Co.,Ltd. |
| 9 | QHD 32-6 Operation Company | 20 | Wenchang Operation Company | 31 | CNOOC Huizhou Refining Project |
| 10 | COSL Chemicals | 21 | Zhanjiang Operation Company | 32 | Zhonghai Asphalt (Sichuan) Co., Ltd. |
| 11 | CNPC Offshore Engineering Company Limited | 22 | COSL - EXPRO Testing Services (Tianjin) Co., Ltd. | | |

3. Human Resource

The company now has 261 regular employees in Tianjin, Shenzhen, Huizhou, Zhanjiang and overseas areas, including an excellent service engineer team consisting of 105 persons. These engineers are sent to the major seas and those middle and downstream refining plants, cultivated good service consciousness in years of competition and gained rich experiences in problem solving.

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|------------------------------|-----|
| Expert | 2 |
| Technical personnel | 141 |
| Management personnel | 69 |
| Production personnel | 49 |
| Including: technical experts | 33 |
| Total | 261 |

4. Production Capacity

The company has two oilfield chemical production centers respectively located in Tianjin and Huizhou, which are equipped with polymer synthesis plant, oil refining auxiliary plant, water aqua plant, pre-production plant, compound plant. The annual production capacity of the two centers is over 40,000 ton/year. The plants adopt DCS automatic control for production, which ensures the stable and reliable product quality.

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|-------------------|---|
| Bohai: | Awning, 1700m ² ; Class B warehouse, 800m ² |
| Huizhou: | Awning, 1800m ² ; Class A warehouse, 800m ² ; Class B warehouse, 1400m ² ; Sundries warehouse, 300m ² |
| Shenzhen: | Chiwan warehouse for chemical turnover, 300m ² |
| Zhanjiang: | Awning, 1400m ² ; and Sundries warehouse, 800m ² |



Awning In Bohai Production Center



Warehousing Base In Huizhou Production Center

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|---|---|
| Stainless chemical agent tank: | 1200 pieces 550 gallon stainless chemical agent storage tanks; meeting DNV inspection standard. |
| 200L packing barrel: | All produced oil-soluble and water-soluble chemical agents will be packed, stored and transported with the barrels meeting national Category II safety standards; such barrels are disposable. |
| 1m³ IBC packing barrel: | The water-soluble chemical agents with a huge consumption will be packed with IBC barrels which shall be replaced every 0.5 - 1 year. |
| Chemical agent transportation: | We have the dangerous chemicals transportation qualification and are able to ensure the safety of transportation; the chemical agents can be delivered to ports within 8hours (3 hours in emergency) upon receiving notice. |



550 gallon stainless chemical agent storage tank



200L chemical agent galvanized barrel



1m³ IBC chemical agent storage barrel

5. R&D Capability

- Demulsifier research lab
- Oil-gas gathering and transferring agent research lab
- Water-treatment agent research lab
- High temperature and high pressure corrosion research lab
- Scale inhibitor R&D lab
- Mud analysis & evaluation lab
- Oil product and water quality analysis lab



6. Oil, Gas And Water Treatment And Gathering & Transferring Technology

- Development of a series of crude oil demulsifier applicable to various water cut stages of heavy oilfields.
- Development of three series of paraffin inhibitor: ① polycyclic aromatic hydrocarbon type paraffin inhibitor; ② surfactant type paraffin inhibitor; ③ polymeric paraffin inhibitor.
- Development of two series of pour point depressant: surfactant type (petroleum sulfonate, polyoxyethylene alkyl amine, etc.) and polymeric type (alkylphenol formaldehyde resin, polyacrylate, polyvinyl acetate, ethylene vinyl acetate, poly-alkene, etc.)
- Development of two series of drag reducer: crude oil transportation drag reducer and water injection drag reducer.

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- Development of two series of natural gas hydrate inhibitor: monomer or compound of low mass molecule alcohol or alcohol ether, surfactant (ABS, 1227, OP, AE, etc.) and polymer (PVP, VCL/NVP, etc.)
- Development of a series of defoamer with high alcohols, polyether, organosilicone and polyether modified silicone.
- Having demulsification and dewatering technologies applicable to medium oil, thickened oil and super-heavy-oil.
- Having chemical and process technologies applicable to treatment of oily sewage.
- Having chemical and process technologies applicable to treatment of chemical flooding produced liquid.
- Having paraffin removal and control, viscosity reduction and drag-reducing technologies applicable to crude oil with paraffin and high viscosity.
- Having hydrate inhibition technology applicable to natural gas gathering and transferring.
- Having corrosion control technology applicable to oilfields with high concentrations of H₂S, CO₂, and high acid values.
- Having technologies of sterilization, deoxygenation, corrosion inhibition and anti-scaling applicable to various water injection methods.



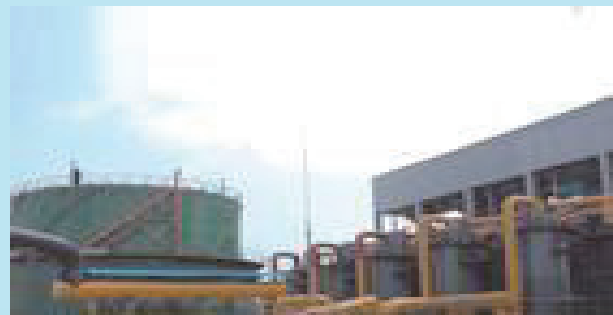
Oilfield Wastewater Treatment



Chemical Flooding Wastewater Treatment



Industrial Circulating Water Treatment



Water Injection Treatment Technology