Delayed coking inhibitor is one of the main techniques for reducing the light vacuum residue. But try to avoid the coking of furnace tube, reduce the recycle ratio and improve the processing ability of the device, achieve the long-term operation as a result to make the processing capacity of the device into full play is still an important topic. By adding some additives in the raw material, controlling the thermal cracking reaction and inhibiting the formation of coke, with the purpose to improve the liquid collection is a simple, economical and reasonable measure.

### Technical Indicators

<table>
<thead>
<tr>
<th>Item</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Dark oily liquid</td>
</tr>
<tr>
<td>Density, g/cm³ 20°C</td>
<td>0.80~1.00</td>
</tr>
<tr>
<td>Kinematic viscosity, mm²/s, 40°C</td>
<td>Measured</td>
</tr>
<tr>
<td>Freezing point; °C</td>
<td>≥ -10</td>
</tr>
<tr>
<td>Flash point (closed); °C</td>
<td>≥ 60</td>
</tr>
<tr>
<td>Mechanical impurities</td>
<td>≥ 0.06</td>
</tr>
<tr>
<td>Water content</td>
<td>≥ 0.1</td>
</tr>
</tbody>
</table>

This product is dark brown and flammable liquid, insoluble in water, slightly soluble in ethanol, soluble in xylene, diesel, kerosene, and other organic solvents, it applied for the coking prevention of delayed coker furnace tube and improve the processing capacity.

### 3. Product performance.

**3.1.** The inhibitor is composed of a variety of functions and reasonable composition. Such as the hot cracking mediated promoter (block polyether with molecular weight in 5000~12000), free radical chain reaction inhibitor (pentaerythritol), anti coke agent (sulfenic acid amide), solvent (diesel or kerosene) and a series of metal-ion polymer compounds without silicon.

Adding it in delayed coking residue would promote the free radical homolytic reaction and reduce the generation of crack gas; would reduce the degree of association of residue micelle and make the mild groups easy separated in tower; would react with the peroxides in raw materials and suspend the chain reaction (condensation); would reduce the formation of coke and possess the antioxidant and metal passivation effects; would disperse the generated polymer into liquid product, control the formation of metal fouling on the surface, keep the metal surface cleaning and possess the advantages of high temperature resistance.

**3.2.** Dilution configuration 50% solution with diesel and the dosage was based on the coke tower feed (on a fresh feed of 50 100 ppm). Using the metering pump, the coke inhibitor solution was filled to the delay coking heating furnace tube at the entrance with the condition of continuous filling.

**3.3.** To prevent the raw material coking and fouling in the furnace tube caused by the high temperature and the anti coke inhibition rate could reach 92%; slow down the wall temperature rising velocity of heating furnace tube (heating furnace tube average surface temperature rise no more than 30 °C); keep the furnace temperature and furnace tube pressure drop smooth and prolong the operating cycle of unit one time longer.

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3.4. To use this agent could decrease the coking cycle ratio with 0.1-0.2, apparently improve the delayed coking production efficiency and economic benefits.

3.5. The product using silicon free anti coking agent, ensure that the silicon content with < 1ppm. Adding the agent would not affect the device's normal production, would not change the product distribution and quality, with no side effect on the subsequent process.

Applying

This product possess good oil solubility, could be used to dilute and portable device, easy filling;

This product does not contain easy decomposition, such as sulfur, nitrogen and other compounds, chemical stability, non-toxic and no strong pungent smell.

This product is oil soluble additives, forbid long-term storage in the high temperature equipment, not close to the fire.

The operator should comply with the safety and health regulations of the enterprise as well as the operation procedure.

Users should choose the best operating conditions according to the specific circumstances of their respective devices.

Packing and Storage

This product loaded with 200L closed drum, net weight 170Kg / barrel.

It should be stored in a cool ventilated place, forbid to the fire.

Safety Precautions

The operator shall comply with the safety and health regulations of the enterprise as well as the operation procedure.

To use this product should wear latex gloves and protective glasses. If touched with the skin, firstly washed with a large amount of water and then wash with soap.

Such as the case of the product splashed into the eyes, please rinse immediately with the water and then check the doctor.

In case of fire, please use 1211, dry powder, foam, CO₂ fire extinguisher and fire extinguishing sand, water is not available.

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Because the conditions of use of this product are beyond the seller's control, the product is sold without warranty either express or implied and upon condition that purchaser make its own test to determine the suitability for purchaser's application. Purchaser assumes all risk of use and handling of this product. This product will be replaced if defective in manufacture or packaging or if damaged. Except for such replacement, seller is not liable for any damages caused by this product or its use. The statements and recommendations made herein are believed to be accurate. No guarantee of their accuracy is made, however.