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PRODUCT DATA SHEET

CP-52 light-weight additive for oil well cement**Product Description**

CP-52 Light-weight additive for oil well cement mainly consists of floating beads. After coal combustion, the part of the ash melt and due to the surface tension, the ash part shrinks to spheres, when the powder ash flies into the water, it is cooled dramatically, and forms hollow closed particles lighter than water, and those are floating beads.

Characteristics

Floating beads with a certain activity in the cement slurry, the main chemical composition is silica, alumina, and a small amount of iron oxide, calcium oxide and magnesium oxide. These substances can be precipitated with portlandite or oulopholite shaped by the cement hydration, then they could form a kind of chemical compound having gelling properties, thereby increasing the strength. Taking advantage of floating beads as a kind of light-weight material can prepare the slurry whose density lows to $1.2\text{g} / \text{cm}^3$. At the same density conditions, floating beads with low density cement slurry generally have lower content of free fluid, higher strength and lower permeability of cement and other properties.

Technical Specification

• Appearance	White or gray flowing powder
• Water content, %	≤ 0.2
• Impurity, %	≤ 3.5
• Stacking Density, g/cm^3	≤ 0.50
• Fineness (0.315 mesh), %	≤ 10.0
• Density, g/cm^3	≤ 0.80
• Cement slurry density, g/cm^3	≤ 1.6
• Free fluid, %	≤ 1.4
• Settlement experiment, %	≤ 2
• 24h Compression strength, Mpa/ ordinary pressure 24h	≥ 8.0

Table slurry formulation: Class G cement 25% CP-52 + 6% CP-53 + 1.5% G33S + 0.5% USZ

W / S (water-solid ratio): 0.53 Water: Distilled water.

Packing, Storage

- Packed in tri-layer paper bags, 25kg/bag, or packed according to the request of clients.
- Placed in dry, ventilated, shady and cool circumstance. Be kept away from harmful substance in store and transportation.
- Its storage life is two years.

PRODUCT DATA SHEET

CP-53 light-weight additive for oil well cement**Product Description**

CP-53 Light-weight additive for oil well cement mainly consists of minuteness silicon powder, which is formed after condensation of silicon dioxide, silicon gas and oxygen in the atmosphere. Silicon dioxide, silicon gas is shaped when metallurgical electric furnace' temperature goes up to 2000°C or more.

Characteristics

CP-53 light-weight additive for oil well cement is capable of filling the pores in the particles of cement slurry, and at the same time generates gel with hydration products and alkaline material of magnesium oxide. When CP-53 is used in the cement slurry, it can appropriately increase the water's ratio, effectively reduce slurry's density; and can increase the density of cement stone, significantly improve pressure tolerance, rupture strength, impermeability, and corrosion resistance; also can effectively extend the life of oil and gas wells.

Technical Specification

• Appearance	Gray powder
• Water content, %	≤0.5
• Fineness (0.315 mesh), %	≤0.5
• Density, g/cm ³	2.30~2.60
• Cement slurry density, g/cm ³	≤1.60
• Free fluid, %	≤1.4
• Settlement experiment, %	≤2
• 24h Compression strength , Mpa/ ordinary pressure 24h	≥8.0

Packing, Storage

- Packed in tri-layer paper bags, 15kg/bag, or packed according to the request of clients.
- Placed in dry, ventilated, shady and cool circumstance. Be kept away from harmful substance in store and transportation.
- Its storage life is two years.

PRODUCT DATA SHEET

CP-54 Silicon powder for oil well cement**Product Description**

CP-54 silicon powder for oil well cement is processed from high-purity quartz sand.

Characteristics

- CP-54 density is about $2.65 \pm 0.03\text{g} / \text{cm}^3$, non-toxic, odorless, non-corrosive, and does not pollute the environment.
- CP-54 fineness is $75\mu\text{m} \sim 96\mu\text{m}$.
- CP-54 general content is 25% ~ 35% (BWOC).
- Cement slurry with CP-54 has the ability of preventing the recession of strength in a high temperature.
- This product has high purity and has a good compatibility with other additives.

Technical Specification

- | | |
|----------------------------|---|
| • Appearance | White powder or slightly colored powder |
| • Water content, % | ≤ 0.5 |
| • Fineness (0.180 mesh), % | ≤ 10 |
| • Silica content | $\geq 90\%$ |

Packing, Storage

- Packed in Plastic bags, 50kg/bag, or packed according to the request of clients.
- Placed in dry, ventilated, shady and cool circumstance. Be kept away from fire or harmful substance in store and transportation.
- Its storage life is two years.

For more information on CP-54, please email us at info@wellservpec.com

PRODUCT DATA SHEET

CP-55 Micro Glass Bead for Oil Well Cement

Product Description

CP-55 is the high performance micro glass bead. It is mainly used as filler in low density cement.

Characteristics

- CP-55 is the high performance micro glass bead, it has lower density, small thermal conductivity, high compression strength, good fluidity and chemical stability, etc.
- Appearance: White powder.
- Normal dosage: 1.0%~10%(BWOC). It can be used in compounding cement slurry with density between 1.25~1.80 willfully. Reducer its dosage with the increase of the cement slurry, and decrease the ratio of water to cement. Its thickening time, theology and content of free water can meet the demands of construction.
- Preferred dry mixing.

Technical Specification

- | | |
|-----------------------------------|--------------|
| • Appearance | white powder |
| • Water content, % | ≤0.5 |
| • True density, g/cm ³ | ≤0.50 |
| • Floating rate of volume,% | ≥90 |

Packing, Storage

- Packed in tri-layer paper bags with polyethylene liner, 10kg/bag or packed according to the request of clients.
- Placed in dry, ventilated, shady and cool circumstance. Be kept away from harmful substance in store and transportation.
- Its storage life is two years.

PRODUCT DATA SHEET

CP-56 Liquid Silicone for Oil Well Cement**Product Description**

Liquid silicon is a suspension that silicon steam after oxidation, the amorphous, reactive silica (SiO₂) particles, has been collected by specially designed dust collector, with water are mixing by a special treatment technology thus to forming this kind of suspension. The average particle grain diameter of liquid silicon is 0.15 μm, and its specific surface area is up to 21 m² / g. CP-56 liquid silicon for oil well cement has a strong surface activity, and is able to bound the interstitial water in cement slurry, and can quickly improve the grout gelling speed, increasing gas channeling resistance, meanwhile improving the interface cementation quality, reducing cement stone permeability.

Characteristics

- This product is applicable to all mud systems, improving the slurry's stability and anti-gas channeling ability.
- Applicable temperature : 30-180°C
- Suitable for all kinds of well cement
- Dosage: 3-25% .Depending on the actual water slurry system, let the test to determine the actual optimum dosage.

Technical Specification

- | | |
|-------------------------------|-----------------------|
| • Appearance | Gray-and-black liquid |
| • SiO ₂ content, % | ≥50 |
| • PH | 5~7 |
| • Density, g/cm ³ | ≥1.40 |

Packing, Storage

- It can be packaged in plastic drums, 50kg/drum.
- Warehouse storage of this product must be ventilated, dry, and clean.
- When storage and transportation, this product shall not be mixed with hazardous substances, preventing from sun, rain, and transit shall have coverings.
- Its validity is one year.

PRODUCT DATA SHEET

DF-R The latex Defoamer for Oil Well Cement**Product Description**

DF-R can achieve the purpose of defoaming by reducing the surface tension of the liquid.

Characteristics

- DF-R is a kind of Synthetic silicone defoamers.
- Its appearance is colorless or light yellow liquid, and specific gravity is about $1.10 \pm 0.03 \text{g / cm}^3$, non-toxic, odorless, non-corrosive, does not pollute the environment.
- Common dosage is 0.1% ~0.5% (BWOC).
- It has the function of suds suppressing, anti-foaming, anti-gas channeling, and anti-foaming rapidly.
- Anti-acid and high temperature
- It has good compatibility with other additives.
- It has no adverse effect on other properties of cement slurry.

Technical Specification

- | | |
|--------------------------------|-----------------|
| • Density | 1.10 ± 0.03 |
| • pH | 4.0-7.0 |
| • Residue on ignition | ≤ 0.3 |
| • Slurry density recovery rate | ≥ 90.0 |

Packing, Storage

- Package by 25L plastic drum, 20kg / barrel.
- Its storage should prevent loss of leakage and can't be near the fire.
- Its storage life is one year.

For more information on DF-R, please email us at info@wellservpec.com

PRODUCT DATA SHEET

DF-T Defoamer for Oil Well Cement

Product Description

DF-T can achieve the purpose of defoaming by reducing the surface tension of the liquid.

Characteristics

- DF-T is a kind of Polyether esters defoamer.
- Its appearance is colorless or light yellow liquid, and specific gravity is about $1.10 \pm 0.03\text{g} / \text{cm}^3$, non-toxic, odorless, non-corrosive, does not pollute the environment.
- Common dosage is 0.1% ~ 0.3% (BWOC).
- It has the function of suds suppressing, anti-foaming, anti-gas channeling, and anti-foaming rapidly.
- Anti-acid and high temperature
- It has good compatibility with other additives.
- It has no adverse effect on other properties of cement slurry.

Technical Specification

- Appearance colorless or light yellow liquid
- Slurry density recovery rate, % ≥ 90

Packing, Storage

- Package by 25L plastic drum, 20kg / barrel.
- Its storage should prevent loss of leakage and can't be near the fire.
- Its storage life is one year.

For more information on DF-T, please email us at info@wellservpec.com

PRODUCT DATA SHEET

G30S Fluid Loss Control Additive for Oil Well Cement**Product Description**

High polymer molecular chains dissolving in water instantly get together to reduce the permeability of filter cakes of cement slurry and by means of granularity selection and cosolvent optimization to enhance the hydrophilic performance.

Characteristics

- G30S is made up and modified by AMPS, low molecular weight amides, polyhydroxy carboxylic acids, solubilizers and so on.
- G30S is a kind of fine particles, whose size is 20 mesh to 40 mesh, and can dissolve in
- Water instantly.
- Filtration property: <100mlAPI FL.
- Solubility : Instant soluble
- General dosage range: 0.4~0.8% (BWOC)
- Compatibility: good
- Solubility with cement: any class of cement
- Well cement stability is great; free fluid is close to zero.
- Slurry thickening transition time is short, close to a right angle thickening
- For low density, conventional density and high density slurry systems dry mix or wet mix.
- Has a certain retarding property on the cement slurry.

Technical Specification

- | | |
|--|---------------------------|
| • Initial consistency, Bc/80°C. 46.5MPa. 45min | white powder flow ability |
| • Thickening linear | Normal |
| • Time of 40Bc~100Bc, min | ≤40 |
| • Loss of water, ml/80°C. 6.9MPa. 30min | ≤150 |
| • Free fluid, % | ≤1.4 |
| • Compression strength MPa/102°C. 21MPa. 24h | ≥14 |

Packing, Storage

- Sacked with three-layer plastics bag, 25kg per bag
- Be kept away from moisture and possible damage of the packages in transportation, and stored in cool and dry situation.
- Storage life time is two years.

PRODUCT DATA SHEET

G31S Fluid Loss Control Additive for Oil Well Cement**Product Description**

The agent as the main monomer is AMPS water-soluble polymers. By molecular beam chain aggregation reduces the slurry cake permeability. The polymer dispersion is strong, resistant to high temperatures and salt.

Characteristics

- G31S polymerization modifier made of AMPS, low molecular weight amides, polyhydroxy carboxylic acid.
- G31S is flowing powder or small particles, 20 mesh sieve residue of less than 7%, not completely soluble in water.
- Temperature Resistance Rating: 30~160°C.
- Salt range: fresh to saturated water
- Filtration property: < 100ml API FL.
- Solubility: soluble
- Dosage: 0.5~1.2% (BWOC)
- Compatibility: good
- Solubility with cement: any class of cement
- Well cement stability, free fluid is close to zero
- Slurry thickening transition time is short, close to a right angle thickening
- Density range: any density of cement slurry
- Has a certain retarding property on the cement slurry

Technical Specification

- | | |
|---|----------------------------------|
| • Appearance | Grayish white powder or granules |
| • Moisture, % | ≤8.0 |
| • Fineness (0.315mm shorts), % | ≤0.50 |
| • Initial consistency, Bc/80°C. 46.5Mpa.45min | ≤30 |
| • Thickening linear | normal |

The ingredients of the cement in the table are : cement 800g, water 352ml, Dosage 0.8% of G31S.

Packing, Storage

- Sacked with three-layer plastics bag, 25kg per bag.
- Be kept away from moisture and possible damage of the packages in transportation, and stored in cool and dry situation. Storage life time is two years.

For more information on G31S, please email us at info@wellservpec.com