Packer Element For CCUS/CO_2 Wells

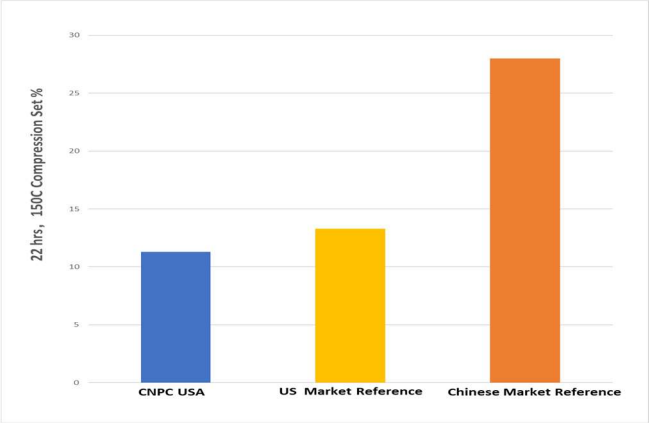
CNPC USA has developed a series of packer element compounds specifically for CCUS and CO_2 wells. The elastomer packer elements have been manufactured at commercial scale by CNPC USA quality-controlled compounding and molding processes.

APPLICATIONS

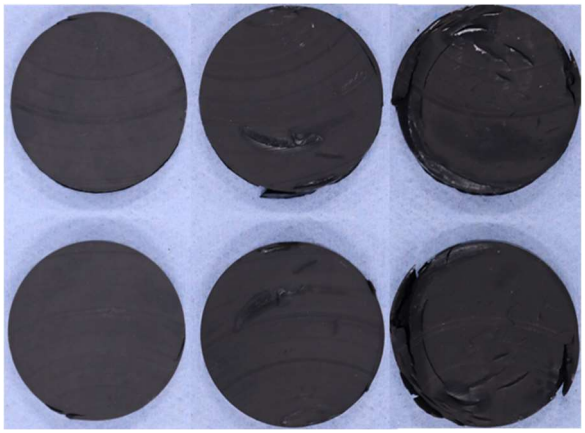
- Designed specifically for packer elements in CCUS storage and CO_2-EOR injection Wells.
- Zone isolation during alternate injection of brine and CO_2.

FEATURES & BENEFITS

- CNPC-USA specially designed formulations and quality-controlled compounding and molding processes.
- Superior, reliable, and long-lasting sealing performance.
- Resistance to rapid gas decompression (RGD) at 720 psi/min.
- Low temperature sealing performance close to -40˚C.
- Based the side-by-side testing in comparison with the materials from three major North America element suppliers, CNPC-USA CCUS packer element compound is significantly better in
  1) CO_2 compatibility (lowest change in weight, volume and hardness)
  2) Sealing performance after long-term CO_2 immersion and RGD (lowest compression set)
  3) Structural integrity after long-term CO_2 immersion and RGD (least structural damage)
  4) Low temperature sealing limit (glass transition temperature close to -40 ˚C)



150˚C compression set results of CNPC USA compound(left), US market product(mid), Chinese market product(right) after 70hr & 100˚C CO2 immersion and 720 psi/min RGD testing.



Cross sections of CNPC USA compound(left), US market product(mid), Chinese market product(right) after 70hr & 100˚C CO_2 immersion and 720 psi/min RGD testing