CNPC
CNPC USA Corp.

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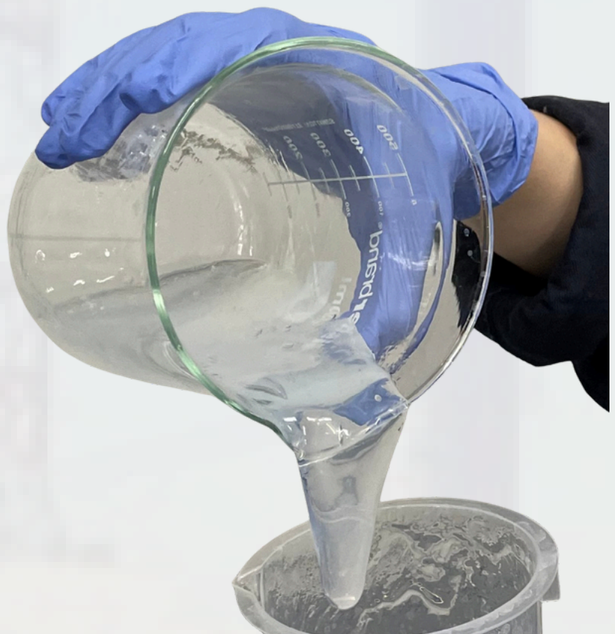
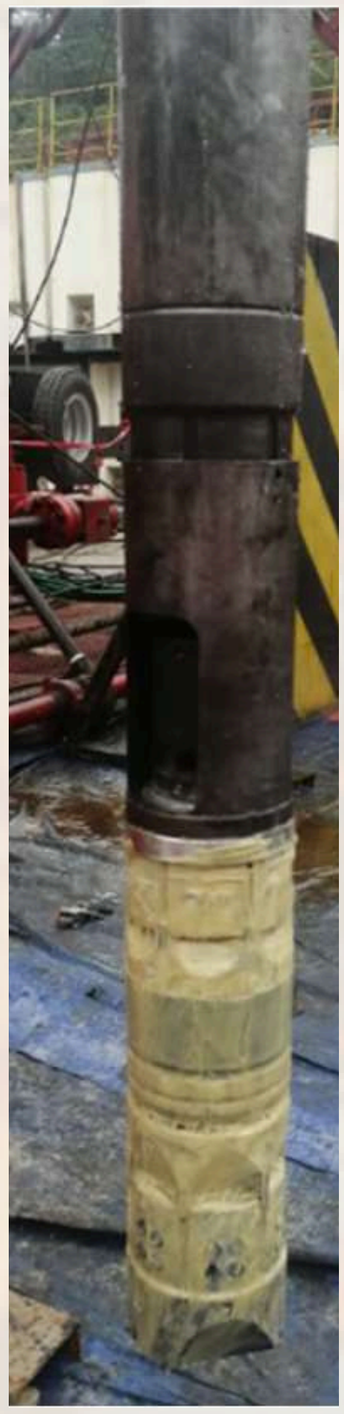
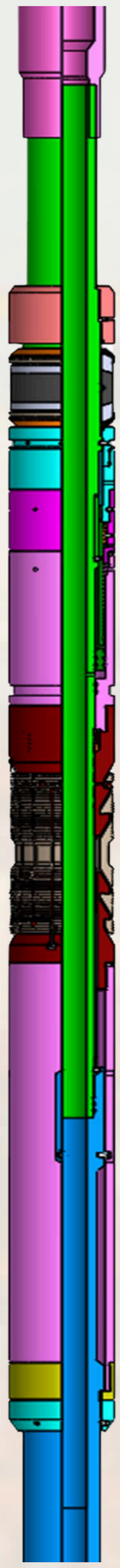
Product Catalog

Engineering the Future of Energy

CNPC
CNPC USA Corp.







CNPC USA

Corporate Office
2901 Wilcrest Drive, Suite 600
Houston, TX 77042

Technology Innovation Center
22130 Merchants Way, Suite 190
Katy, TX 77449

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CNPC USA

One Team. One Dream.

Engineering the Future of Energy

CNPC USA brings the strength of one of the world's largest energy companies directly to the North American market. Founded in 2011 and headquartered in Houston, Texas, we combine global scale with local speed to deliver high-performance solutions that drive results in today's most demanding drilling and completion environments. In 2017, we opened our Innovation Center in Katy, Texas. By combining Houston and Katy resources with CNPC's large internal market, the company is committed to achieving its strategic goals.

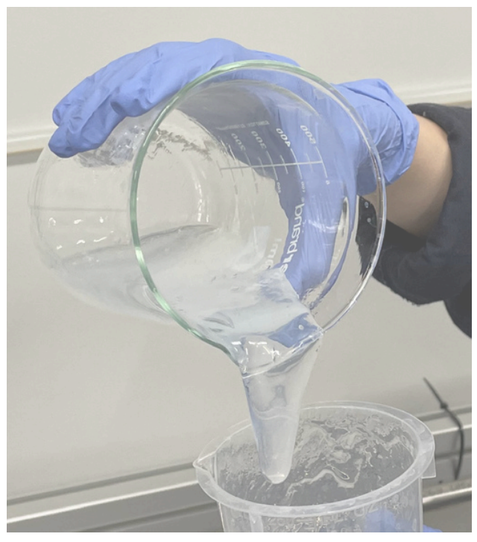
WHY CNPC?

Houston-Based Advantage

▪ On-the-ground support in the heart of the U.S. Energy industry –Responsive, agile, and aligned with your operations.

Global Strength

▪ Backed by CNPC's worldwide engineering, manufacturing, and R&D capabilities.



Performance-Driven

▪ Engineered solutions designed to increase efficiency, reduce down-time and improve well economics.

WHAT WE DELIVER?

Advanced Drilling Solutions

▪ High-performance PDC Bits and cutting technologies.

Completion Tools

▪ Engineered for HPHT and complex downhole conditions.

Award Winning

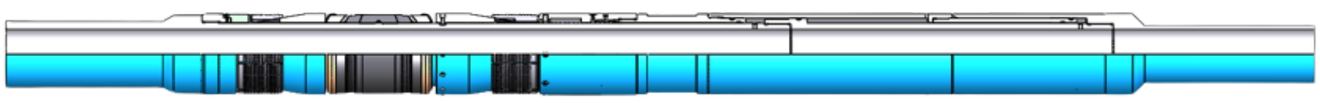
▪ Industry leader in Drilling and Frac fluids.

Integrated Support

▪ Engineering, field support, and technical expertise.

Engineered for the Field

From unconventional shale to high-pressure, high-temperature wells, CNPC USA delivers rugged, reliable solutions that perform where is matters most Down-Hole.



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Quality Manufacturing

Engineering the Future of Energy

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Engineering Solutions You Can Trust

At CNPC USA, we provide a complete range of products engineered to ensure successful operations during the life of your well. What once started as a Research and Development Center has developed into a wide product catalog, each designed with performance, reliability, and your well's return on investment in mind.

Innovation Driving Performance

Our Engineering teams combine decades of expertise and state-of-the-art advancements. Through cutting-edge computer technology and ongoing product development, CNPC USA delivers some of the most advanced equipment available on the market today.

Excellence in Manufacturing

Precision and quality are at the core of everything we do. With state-of-the-art Computer Numerically Controlled (CNC) systems, we manufacture equipment with unmatched accuracy and efficiency. This commitment allows us to offer rapid delivery of made-to-order equipment.

A Commitment to Quality

Every product bearing the CNPC USA name reflects our dedication to excellence. Our manufacturing suppliers are certified to international standards, including API Q1 and ISO-9001, ensuring superior performance and reliability in every piece of equipment we deliver.

Your Partner for Today and Tomorrow

With CNPC USA, you gain more than products—you gain a partner committed to supporting your success with dependable solutions, robust field support, and the innovation needed to meet both current and future challenges.

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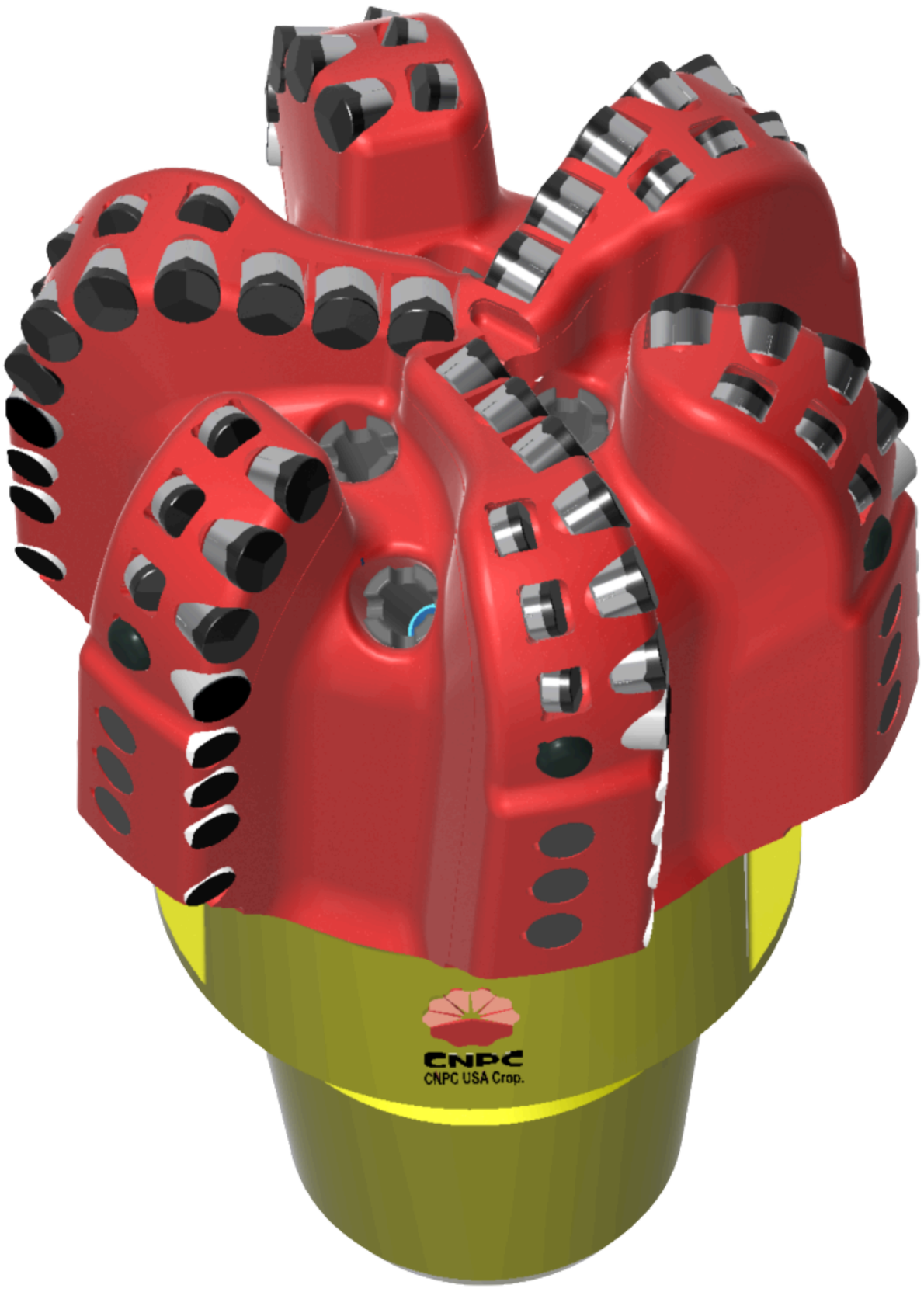
Cutter Technology

Engineered for Peak Drilling Performance

CNPC USA Premium PDC Cutters are designed to meet the toughest challenges of modern oil and gas drilling. Optimized for abrasion resistance, impact resistance, and thermal stability, they deliver reliable, high-efficiency performance in the harshest environments.

CNPC USA achieves this through innovative materials, advanced structural design, precision assembly, and HPHT processes. Each cutter is rigorously tested under simulated real-world conditions to ensure field-proven reliability. By combining thermal stability, impact toughness, and abrasion resistance in one solution, our premium PDC Cutters help operators drill farther, faster, and more efficiently.

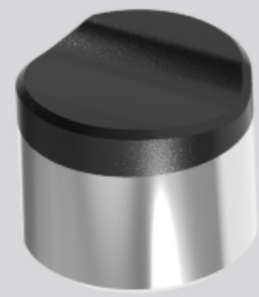


Tridon™ Series
Non-Planar Cutter

- New Convex Ridge Series
- Ultrathick Diamond Cutting Edge
- Enhances Stress Concentration
- High Back Rake Angle Improves Impact Resistance

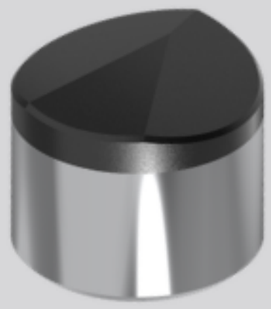
Raptodon™ Series
Non-Planar Cutter

- Concave Series
- Back Rake Angle Varies with Cutting Depth
- Low Surface Roughness Reduces Friction Design
- Chip-Breaking Design Prevents Accumulation



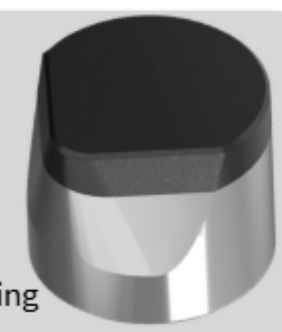
Aspidon™ Series
Non-Planar Cutter

- Large Back Rake Angle Series
- Ultrathick Diamond Cutting Edges
- Increases Penetration into the Formation
- Multi Plane Design Reduces Contact with Cuttings



Crocodon™ Series
Non-Planar Cutter

- Large Curvature Series
- Enhance Stress Concentration
- Reduces Friction Heat Generation
- Dual Rock Breaking Mechanism of Shearing & Crushing



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TRAC™ Series

PDC DRILL BITS

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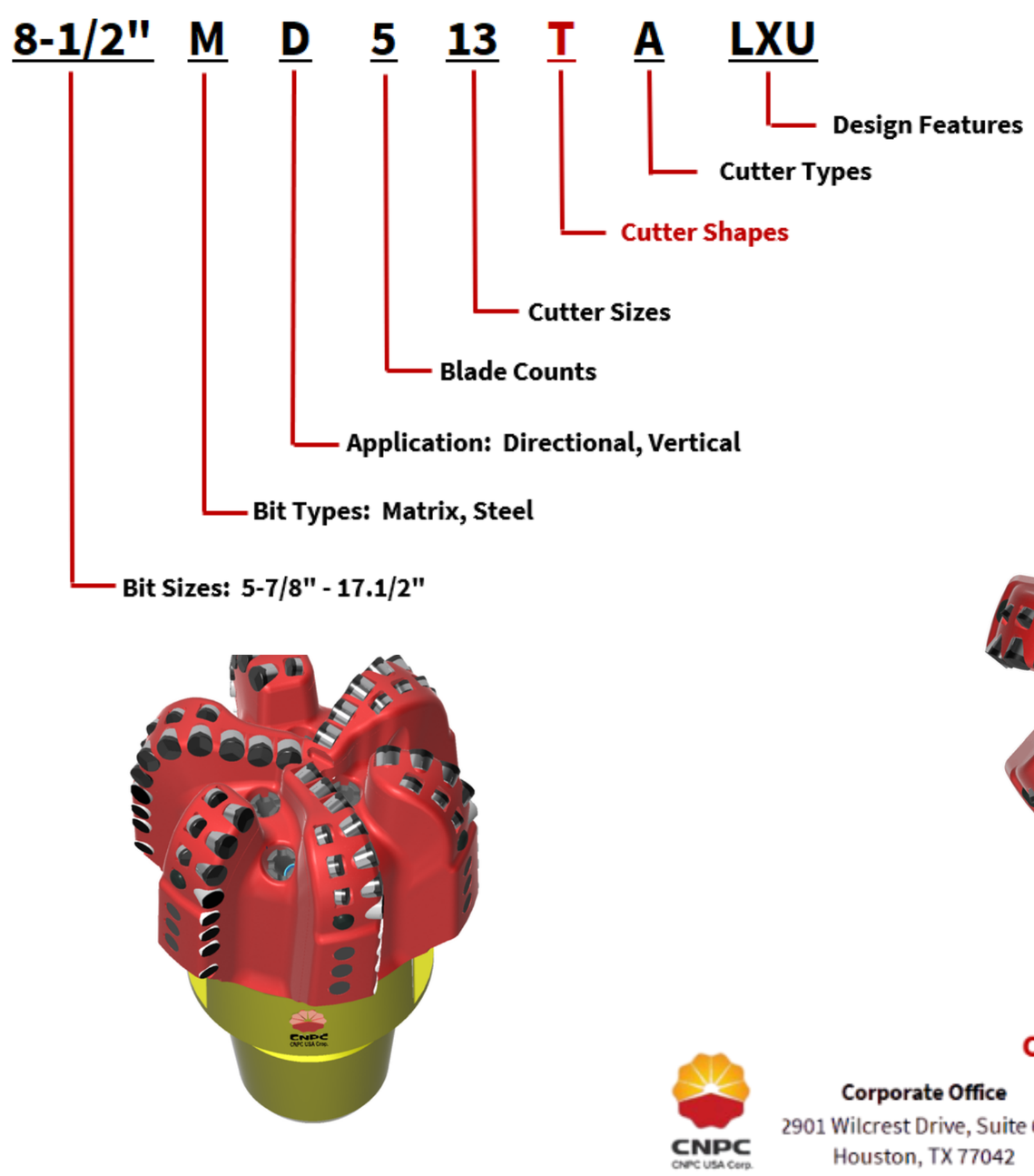
Drill Smarter, Faster, & Further

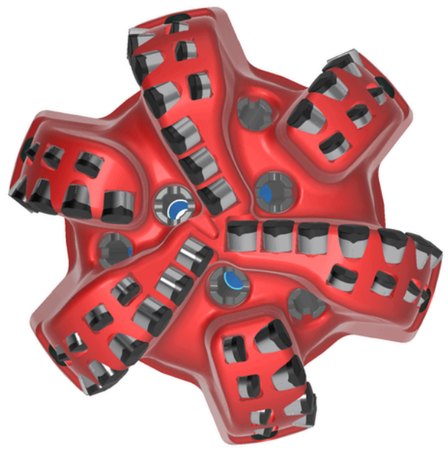
The TRAC™ series PDC bit is a versatile, high-performance drilling solution engineered to handle a wide range of challenging formations. Utilizing proprietary shaped cutter technologies— including Tridon™, Raptodon™, Aspidon™, and Crocodon™—each bit is tailored to optimize durability, cutting efficiency, and adaptability for specific formation conditions, from high-impact and plasticity to extreme abrasiveness and hard rock. Through advanced simulation, hydraulic optimization, and 4D performance evaluation, the TRAC™ Series integrates precision engineered scatting structures, high-quality materials, and rigorous manufacturing standards to ensure consistent, reliable field performance.

With over 700 successful runs and recognition as a **2024 Gulf Energy Awards Finalist**, TRAC™ PDC bits have proven themselves as a trusted solution in demanding drilling environments.

FEATURES & BENEFITS

- Application-specific cutting structures
- Artificial intelligence integrated across the entire bit design lifecycle
- Proprietary shaped cutters designed for targeted formation response
- Higher rate of penetration (ROP) in tough formations
- Longer bit life and reduced replacement frequency
- Agile manufacturing supports rapid, on-demand bit delivery
- Blade count: 3–8
- Cutter size: 13/16/19mm
- Bit size: 5.875”-17.500”



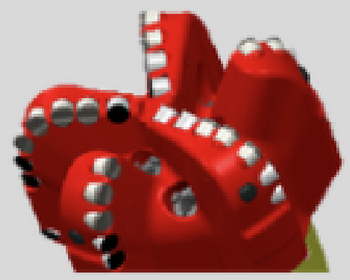


T - Series - Tridon™

- Non-Homogeneous Formation
- Interbedded Conglomerate
- Impact Energy Increased by 10 Times

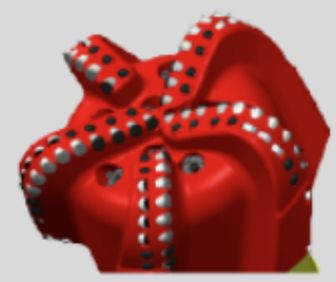
R - Series - Raptodon™

- Clay and Shale
- High-Plasticity Formation
- Cutting Efficiency Increases by 97%



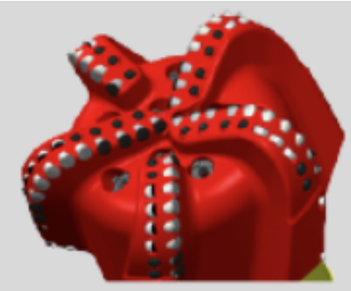
A - Series - Aspidon™

- Sandstone, Chert, Igneous Rocks
- Ultra Abrasive Formation
- Abrasion Resistance Increased by 43%



C - Series - Crocodon™

- Hard Formation
- Carbonate
- Cutting Force Reduced by 41%



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Drill Bits

Premium and Performance

CNPC
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Drill Smarter, Faster, & Further

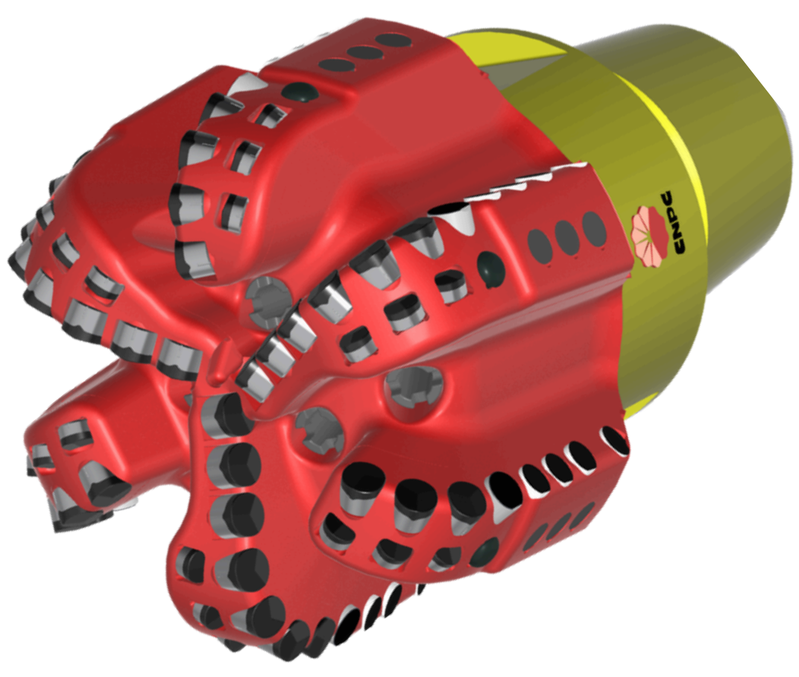
From conventional wells to the most technically demanding drilling programs, CNPC USA drill bits deliver the performance, durability, and engineering reliability operators depend on to achieve superior results.

CNPC USA provides advanced drill bit technologies designed to maximize drilling efficiency, extend bit life, and reduce overall well costs. Engineered for today's challenging drilling environments, CNPC USA drill bits employ advanced materials, optimized cutter technology, and formation-specific design strategies that ensure consistent performance from surface to total depth.

Whether drilling through soft shale, abrasive sandstone, or ultra-hard formations, CNPC USA offers a comprehensive portfolio of bit solutions tailored to specific applications. Each design integrates cutting structure optimization, hydraulic efficiency, and structural durability to improve rate of penetration, enhance stability, and achieve predictable performance in challenging downhole conditions.

FEATURES & BENEFITS

- Application-specific cutter design for targeted formation performance
- Advance PDC cutter technology, including superhard composite materials
- Optimized cutter geometry to improve drilling efficiency
- Higher rate of penetration (ROP) in tough formations
- Longer bit life and reduced replacement frequency
- Improved drilling stability and reduced vibration
- Greater footage drilled per run



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TriDon™

Premium DrillBit

Drill Smarter, Faster, & Further

The TriDon™ series of drill bits are custom designed with application specific cutters to maximize drilling efficiency in hard and abrasive formations. Proven globally, they deliver high rates of penetration and extended footage while providing smooth torque, excellent wellbore quality, and strong dynamic stability. Their advanced gauge configurations and compatibility with multiple directional drive systems enable reliable performance and adaptable solutions across a wide range of drilling applications.

SPECIFICATIONS

12-1/4"	M	V	5	16	T	AXLU
Bit Size (In.)	**Body Material**	**Well Trajectory**	**Blade Count**	**Cutter Size**	**Cutter Shape**	**Optional Features**
3.500"	Matrix	Vertical	3	8	Blank	Abrasion (A)
3.500"	Steel	Horizontal	4	11	TriDon	Back-Up (X)
3.875"			5	13	AspiDon	Impact Cutter (I)
4.000"			6	16	CrocoDon	Up-Drill Cutters (U)
4.125"			7	19	RaptoDon	Active Gauge Cutters (C)
4.625"			9			Shock-Studs (L)
4.750"			10			High Nozzle Counts (H)
5.250"						Low Nozzle Counts (N)
5.500"						Step Gauge (G1)
5.875"						Taper Gauge (G2)
6.000"						
6.125"						
6.250"						
6.500"						
6.750"						
6.875"						
8.375"						
8.500"						
8.750"						
9.500"						
9.875"						
10.625"						
11.000"						
12.250"						
13.125"						
13.500"						
13.750"						
14.750"						
16.000"						
16.500"						
17.000"						
17.500"						

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UltraSense™

SmartBit Intelligence

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CNPC USA Corp.

Monitoring and Recording Drilling Parameters

Embedded sensors and onboard electronics capture temperature, shock and vibration, and rotational dynamics directly at the bit. This enables post-run diagnosis, drilling optimization, and faster bit-design iteration using measurements that surface-based systems cannot reliably provide.

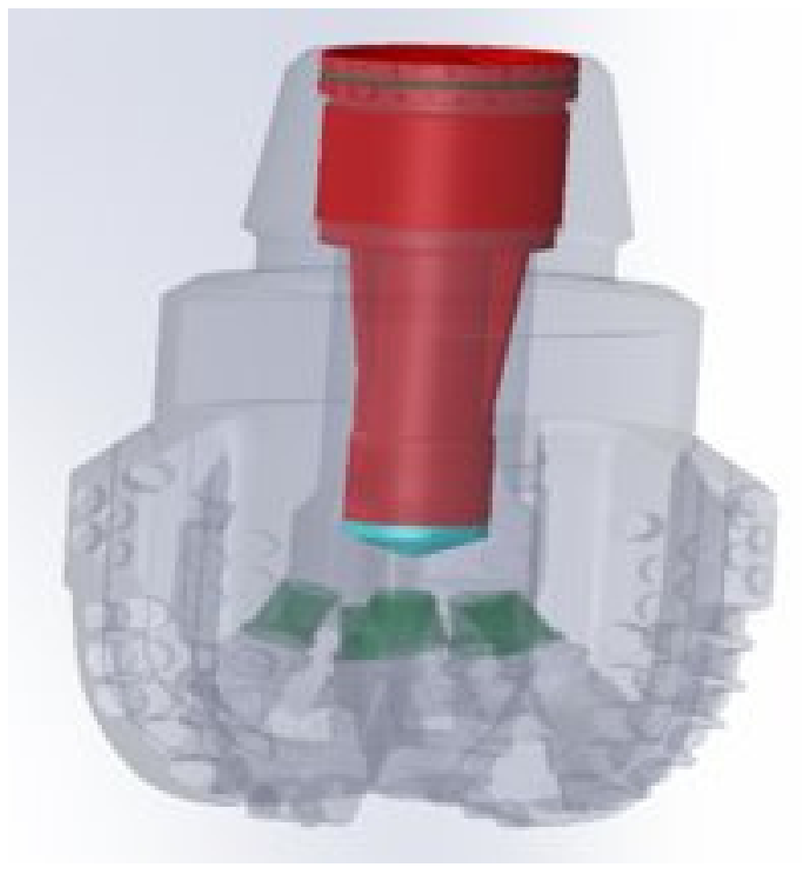
UltraSense™ captures downhole behavior where it matters most—at the bit, delivering direct drilling intelligence even in extreme environments up to 420°F and 30,000 psi. This award-winning platform combines high-temperature, high-pressure sensing, onboard data recording, and actionable drilling insight in a single bit-level intelligence system. Its capability has been proven in field testing in an ultra-deep well in southwest China at 33,000 ft, where temperatures reached 380°F and pressures exceeded 20,000 psi, with data successfully recorded and retrieved.

APPLICATIONS

- Direct measurement at the bit with minimal modification
- No additional sub required and negligible hydraulic impact
- Supports continuous or burst recording with automatic wake-up
- Providing ultra-high temperature/high-pressure data insights directly from the drill bit.

FEATURES & BENEFITS

- Comprehensive sensing of 4 to 7 key drilling parameters
- Identifies stick-slip, whirl, and damaging shocks and vibrations
- Sleep mode with automatic wake-up functionality
- Slip located above packer with anti-debris barrier
- Enhances drilling efficiency and safety with bit-level data



Spotlight on new TECHNOLOGY

2026 OTC Spotlight on New Technology Winner

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Silver Arrow™

Dissolvable Frac Plug

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CNPC USA Corp.

Precision - Engineered Frac Plug

The Silver Arrow™ dissolvable frac plug is used for zonal isolation in multi-stage vertical and horizontal Plug and Perf completions. The plug is rated to 10,000 psi at different downhole temperatures. They plug uses our patented design and proprietary dissolvable rubber and metal, which enable customized design per downhole conditions such as temperature, salinity, and fracturing parameters. This fully dissolvable plug helps eliminate the risk and cost associated with conventional plug removal and upon complete dissolution, provides an entire wellbore ID for future operations. The reliability of the plug has been proven in the field.

APPLICATIONS

- Zonal isolation during multistage stimulation
- Vertical, deviated or horizontal wellbores.
- Suitable for high pump rate operations due to robust design.
- Plug milling consulting services available.

FEATURES & BENEFITS

- Large ID to assist immediate flowback and well cleanup
- High reliability proven by over 1,000 plugs used in multiple wells.
- Options for both up-hole and down-hole pressure holding.
- Fully qualified with respect to pressure, temperature, dissolving, and flow dynamics by independent Third-Party test facilities.
- High pump rates allowed due to the compact and robust design
- Rubber dissolves in water into powder instead of jelly shape
- Robust slip design to set in L80, P110, Q125 and higher-grade casing
- Designed, manufactured, assembled and tested per API standard.

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Silver Arrow™

Composite Frac Plug

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CNPC USA Corp.

Precision - Engineered Frac Plug

The Silver Arrow™ full composite bridge plug is engineered from proprietary high-strength composite materials and incorporates a bidirectional slip system for enhanced anchoring integrity. The slip assembly, constructed from carbon fiber–reinforced composite with integrated ceramic buttons, delivers superior casing engagement and load distribution under high differential pressures.

The tool utilizes a lower shear release mechanism to ensure controlled, repeatable setting and dependable performance in downhole operations. Designed for high-temperature, high-pressure (HTHP) environments, the plug maintains structural integrity under extreme conditions.

Operationally, the system offers straightforward deployment with a focus on safety and reliability, while providing high pressure ratings and optimized mill ability to reduce drill-out time and improve overall operational efficiency.

APPLICATIONS

- Zonal isolation during multistage stimulation
- Vertical, deviated, or horizontal wellbores.
- Suitable for high pump rate operations due to robust design.
- Plug milling consulting services available.

FEATURES & BENEFITS

- Working pressure is up to 15,000 PSI WP
- Provide both up-hole and downhole pressure holding option
- Options for both up-hole and down-hole pressure holding.
- Anti-spinning feature enhances plug mill ability
- High pump rates allowed due to the compact and robust design
- Rubber dissolves in water into powder instead of jelly shape
- Robust slip design to set in L80,P110, Q125 and higher-grade casing
- Designed, manufactured, assembled, and tested, per API standard.
- Provide plug milling consulting service per request

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GuardPro™ Packers

Built for Performance & Flexibility

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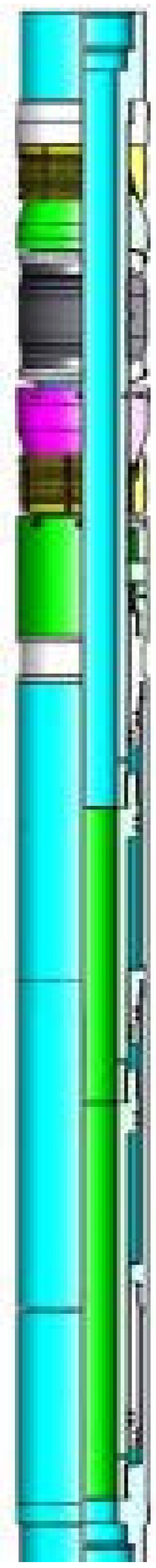
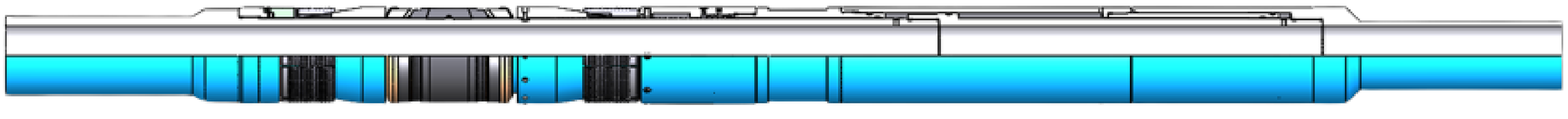
GuardPro™ Permanent Packer



The permanent packer is engineered to deliver dependable, long-term zonal isolation, helping operators maximize production while minimizing downtime. Designed for some of the most demanding environments, it is tested to 15,000 psi in accordance with ISO 14310 standards and has demonstrated V0 gas-tight performance at pressures up to 15,000 psi and temperatures of 400°F. The packer is hydraulically set and features a segmented slip design that evenly distributes load to reduce casing stress, while a robust three-piece sealing element with durable retainer rings ensures consistent, reliable isolation. Built for high-pressure, high-temperature applications, it is suitable for shallow, deepwater, and hostile environments, and can be deployed in vertical, deviated, or horizontal wellbores. Tubing-mounted and gas-rated per API 11D1 V0/V3/V6 standards, the GuardPro™ permanent packer delivers maximum reliability with zero intervention.

FEATURES & BENEFITS

- Lock ring mechanism to retain tubing to packer forces
- Premium sealing element with a robust anti-extrusion mechanism
- Controlled setting sequence
- API 11D1-V0: Rated for gas applications
- High running speed
- Eliminates tubing movement during setting
- Slim OD design for higher pump rates
- Dual setting pistons below element to eliminate leak path after set.
- Pressure testable at surface



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GuardPro™ Packers

Built for Performance & Flexibility

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GuardPro™ Hydrostatic Set Option for Permanent Packer

The Hydrostatic Set Option enhances permanent packer deployment by integrating a modular, pressure-driven activation system that eliminates the need for surface-applied setting pressure. Featuring an interchangeable bottom sub, the packer can be configured with a hydrostatic setting module tailored to well conditions. The Pressure Activation Device (PAD-A) delivers precise, reliable actuation with selectable burst ratings up to 20,000 psi in 250 psi increments, ensuring controlled setting at predetermined downhole pressures. Built on a modular permanent packer platform, this design provides operational flexibility, simplifies deployment in complex wells, and improves setting reliability in high-pressure environments.

FEATURES & BENEFITS

- Eliminates the need for applied tubing pressure, reducing operational complexity and enabling deployment in wells with pressure limitations or restrictions.
- Pressure Activation Device (PAD-A) with burst rating up to 20,000 PSI and in increments 250 PSI
- Modular configuration enables quick adaptation between hydraulic and hydrostatic setting options, reducing inventory requirements and increasing job flexibility.
- Controlled activation minimizes premature setting risk and ensures consistent, repeatable performance in HPHT environments.
- Less reliance on pumps and surface pressure systems lowers operational risk, reduces rig time, and improves overall efficiency.
- Interchangeable bottom sub with option for hydrostatic setting module

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GuardPro™ Packers

Built for Performance & Flexibility

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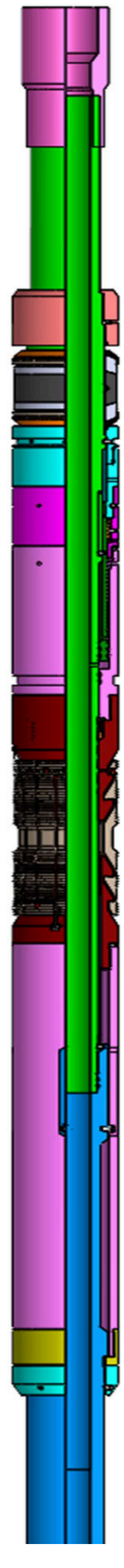
GuardPro™ Retrievable Packer

The retrievable packer is engineered for temporary or permanent zonal isolation in HPHT environments, enhancing well performance and integrity. It features a barrel slip design to distribute loads into the casing and a three-element sealing system rated to 15,000 psi and 400°F. Available in NACE and non-NACE configurations, the tool is qualified to ISO 14310 V0 and API 11D1 V6/V0 standards.

Hydraulically set via a dual-piston mechanism, the packer ensures controlled deployment with minimal setting force while limiting tubing movement. A premium anti-extrusion system and debris-protected slip assembly maintain reliability in harsh conditions. The patent-pending cut-to-release (EJC) feature enables efficient retrieval, making the tool suitable for single- and multi-zone completions across shallow, deepwater, and hostile environments.

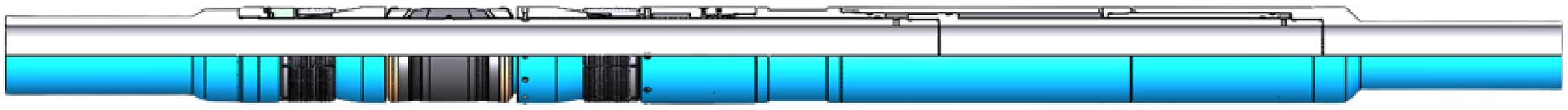


APPLICATIONS

- Zone isolation to maximize well production
- Vertical, deviated, or horizontal wellbores

FEATURES & BENEFITS

- API 11D1 V6/V0 Qualified
- Barrel Slip for distributing packer to tubing forces into casing and minimizing casing stresses
- Premium anti-extrusion mechanism
- Proven 360° Barrel Slip design reduces casing stress
- Anti-preset feature ensures reliability during run-in and is adjustable to fit almost any application
- Reliable cut to release mechanism (EJC)
- Slip located above packer with anti-debris barrier
- Removable by cut-to-release methods
- Packer for shallow, deepwater and hostile environments applications



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GuardPro™

Safety Valve

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CNPC USA Corp.

GuardPro™ Tubing Retrievable SCSSV

GUARDPRO™ Tubing Retrievable safety valves are rated for up to 25,000 psi [175MPa] working pressure and setting depths up to 2,000 ft [610m]. They are available with premium piston hydraulic control line isolation and through-flapper, self-equalizing features. FlowGATE™ valves are also available in 'slimline' and curved flapper configurations for your most space-challenging completion strategies.

The design approach for the GUARDPRO™ safety valves was to remove as many hydraulic control system and flapper bypass leakage paths as possible to increase the operational reliability of the valves. The resulting design has set the benchmark for the fewest hydraulic system and shut in bypass leakage paths as well as total number of valve components in the industry. We have used our +100 years of combined experience to provide the best safety valve design ever executed.

In the unlikely event that the SCSSV requires remediation, the Lock Open Tool (LOT) will permanently lock the flow tube in the 'open' position allowing for 'full-bore' thru-tubing operations. Once the novel Communication Tool (COM) has been used to perforate the hydraulic piston bore, the KRONOS™ wireline retrievable safety valve is ready for the installation.

FEATURES & BENEFITS

- API-14A V1 Qualified, Validated to API-14A, Validation Grade V1
- Non-Elastomeric Seals
- All Metal-to-Metal Seal Body Joint Connections.
- Proven 360° Barrel Slip design reduces casing stress
- Polished Bore Size Flexibility, CRA Materials, Premium Threads
- Designed, manufactured, assembled and tested per API standard in USA

SPECIFICATIONS

Tubing Size Inch (mm)	OD Inch (mm)	ID Inch (mm)	Fail Safety Setting Depth Ft (m)	Pressure, PSI (MPa)	Temperature Deg. F
2.375" (60.30)	3.625 (92)	1.875 (47.60)	2,000 (690)	10,000 (70)	400 F
2.875" (73.02)	5.07 (128.80)	2.312 (58.70)	2,000 (690)	10,000 (70)	400 F
3.500" (88.90)	5.70 (145)	2.750 (70.00)	2,000 (690)	20,000 (140)	400 F
3.500" (88.90)	5.70 (145)	2.375 (60.30)	2,000 (690)	25,000 (175)	400 F
4.500" (114.30)	5.70 (145)	2.750 (70.00)	2,000 (690)	20,000 (140)	400 F
4.500" (114.30)	5.70 (145)	2.3750 (60.30)	2,000 (690)	25,000 (175)	400 F
5.500" (139.70)	8.50 (215.90)	4.562 (115.80)	2,000 (690)	10,000 (70)	400 F
7.00" (177.8)	9.718 (246.80)	6.000 (152.40)	2,000 (690)	10,000 (70)	400 F

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Drilling Monitoring Sub

Realtime Down-hole Diagnostic

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Drill Smarter, Faster & Further

The Downhole Measurement System (DMS) is a real-time diagnostic tool that captures critical bit-level data—including 3-axis shock and vibration, weight on bit (WOB), torque on bit (TOB), and bending forces—that surface sensors cannot accurately detect. By identifying dysfunctions such as whirl, stick-slip, and lateral or axial shocks, DMS enables initiative-taking adjustments to drilling parameters through MWD telemetry. This not only prevents costly tool failures and extends bit/BHA life but also plays a vital role in directional control by providing high-resolution feedback at the bit. Fully compatible with multiple MWD platforms, DMS is an essential solution for optimizing ROP, improving hole quality, and ensuring safe, efficient drilling in today's performance-driven operations.

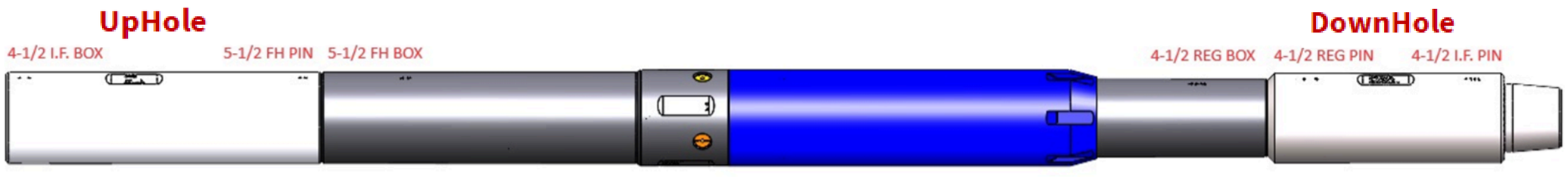
FEATURES

- 9 parameters comprehensive sensing
- Multi-mode enhanced drilling diagnoses
- Real-time surface transmission
- Dual battery and turbine power modes
- Continuous recording for post-run analysis
- Open and scalable integration with other MWD platforms

BENEFITS

- Reveals downhole conditions missed by surface sensors
- Enables real-time ROP and efficiency gains
- Detects damaging shocks and vibrations early
- Improves tool-face accuracy and trajectory control
- Supports real-time response and post-run analysis

GENERAL SPECIFICATIONS	
Borehole Size Range	8-3/8" - 9-7/8"
Nominal O.D.	6-3/4"
Maximum O.D.	7-3/8"
Length	2.00"
Collar Material	114 Feet
Auxiliary Materials	P550 Non-Mag SST
Elastomer Material (Standard)	Fluorocarbon 90D - Parker V0709
Elasomer Material (H2S)	Fluorocarbon 95D - Parker V1238
Weight	818 Lbs.
Operating Flow Range	0 - 800 Gal/Min
Operating Temperature	32F - 347F / 0C - 175C
Maximum Operating Pressure	25,000 PSI WP / 172mPa
Maximum Overpull (Tension)	500,000 Lbs. / 2,224 kN
Maximum Weight On Bit (WOB)	1,000,000 Lbs. / 4,448 kN
Maximum DLS	10 Degrees / 100 Feet
Maximum Torque	30,000 FT Lbs. / 40,675 Nm
ELECTRONICS	
Memory Life	200 Hours
Voltage Input	20 - 36 Volts
Power consumption	90mA / <5 Watts
Downhole Memory	16 Gb
Interface to MWD	RS485 / 232, or Custom
Mud Content	
Maximum Lost Circulation Material	No Limit
Maximum Sand Content %	1.0%



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Pressure While Drilling

Realtime Down-hole Diagnostic

CNPC
CNPC USA Corp.

Drill Smarter, Faster & Further

The PWD monitors downhole drilling parameters with high accuracy and full scale for improved efficiency and overall drilling performance in mitigating BHA shock and vibration, the primary causes of downhole tool failure. Parameters acquired by PWD include internal and external pressure; temperature; shock and vibration; and RPM. Measurements are simultaneously recorded and transmitted to surface in real time with MWD Telemetry for optimized drilling and improved. Has Options For battery configuration or MWD connection (DLA).

FEATURES

- Real-time BHA diagnostics
- Real-time and recorded measurements
- Compact design, scalable architecture
- Powered by MWD, Turbine or Battery

SOUR SERVICE

The PWD uses 3 high-strength corrosion resistant alloys; INC718, P550, and Beryllium Copper (BeCu). INC718 is a Nickle-Chromium alloy which give is resistance to many media. Nickle contributes to its resistance to many inorganic/organic compounds through a wide range of pH. The chromium is known to add resistance to oxidizing and sulfur compounds and molybdenum adds resistance to pitting. P550 is a Manganese-chromium steel with high nitrogen content. High Nitrogen reduces pitting and protects against stress corrosion cracking and supports the benefits of chromium. BeCU is known for its ability resistance to stress corrosion cracking and maintaining Strength in H2S.

H2S Standard Elastomer is partially H2S resistant but for higher H2S content above 20ppm special elastomer material is available.

GENERAL SPECIFICATIONS	
Borehole Size Range	8-3/8" - 9-7/8"
Nominal O.D.	6-3/4"
Maximum O.D.	7-3/8"
Nominal I.D	2.00"
Length PWD + Battery + DLA	146 1/4""
Weight PWD + Battery + DLA	1,450 Lbs.
Collar Material	P550 Non-Mag SST
Auxiliary Materials	INC 718, BeCu
Elastomer Material (Standard)	Fluorocarbon 90D - Parker V0709
Elasomer Material (H2S)	Fluorocarbon 95D - Parker V1238
Operating Temperature	32F - 347F / 0C - 175C
Maximum Operating Pressure	25,000 PSI WP / 172mPa
Maximum Overpull (Tension)	500,000 Lbs. / 2,224 kN
Maximum Weight On Bit (WOB)	1,000,000 Lbs. / 4,448 kN
Maximum DLS	10 Degrees / 100 Feet
Maximum Torque	30,000 FT Lbs. / 40,675 Nm
ELECTRONICS	
Memory Life	200 Hours
Voltage Input	20 - 36 Volts
Power consumption	90mA / <5 Watts
Downhole Memory	16 Gb
Interface to MWD	RS485 / 232, or Custom
Power Supply	Turbine Power / MWD / Battery
Mud Content	
Maximum Lost Circulation Material	No Limit
Maximum Sand Content %	1.0%

PWD (DLA at Top and Battery at Bottom)

PWD (Middle Section)

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FlexDissolver™

Dissolvable Rubbers

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Reliable, Efficient, Engineered for Performance.

CNPC USA has engineered a versatile portfolio of dissolvable rubber materials designed to perform across a wide temperature range from 40°C to 175°C, enabling reliable operation in diverse downhole environments. Compared to conventional dissolvable elastomers on the market, CNPC USA's formulations deliver superior elongation, enhanced modulus, and exceptional tear resistance—providing the strength and resilience required for demanding applications. The dissolution profile can be precisely tailored to specific well conditions, allowing operators to optimize performance, timing, and overall completion efficiency.

APPLICATIONS

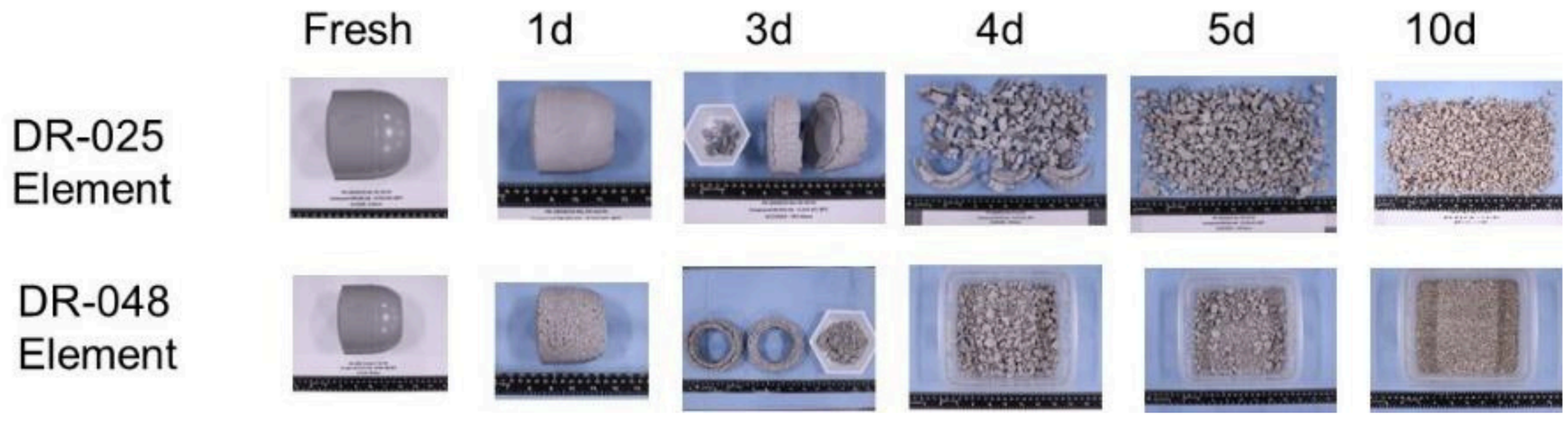
- Sealing elements for dissolvable plugs, dissolvable packers
- Dissolvable sealing materials for various completion, drilling, and measurement tools

FEATURES & BENEFITS

- CNPC USA designed dissolvable rubber formulations and manufacturing process
- Wide temperature ranges from 40°C -175°C /104°C -350°C
- The dissolution and mechanical properties could be controlled. The dissolution rate of the CNPC USA dissolvable rubber was faster than that of the dissolvable rubbers in the market
- The dissolvable rubber has elongation, > 400%, high modulus, high tear strength at high temperature
- The dissolution rate is not affected by the salinity
- Simple to prepare and use with existing field equipment
- The dissolvable rubbers could be fully dissolved at certain temperature

FIELD PROVEN DISSOLVABLE RUBBER PERFORMANCE

- **Extensive Deployment**: Over 4,000 dissolvable rubber elements developed by CNPC USA successfully deployed across ~200 wells in major Chinese oilfields, including Southwest, Daqing, Xinjiang, and Zhejiang
- **Proven at Scale:** 600 low-temperature DR-045 dissolvable rubber elements applied in 103mm and 98mm dissolvable frac plugs in Zhejiang Oilfield. Broad Field Coverage Implemented across 10 platforms and 51 wells.
- **High Operational Efficiency:** Greater than 95% dissolution success rate, eliminating the need for milling in the majority of applications.
- **Minimal Residue:** Flowback residue maintained below 0.4kg, supporting clean wellbore conditions.
- **Cost Optimization:** Achieved a 25% reduction in overall plug cost, improving completion economics



The dissolution progress of DR-025, DR-048 element at 80°C in brine

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Multiset

Packer Element

Reliable, Efficient, Engineered for Performance.

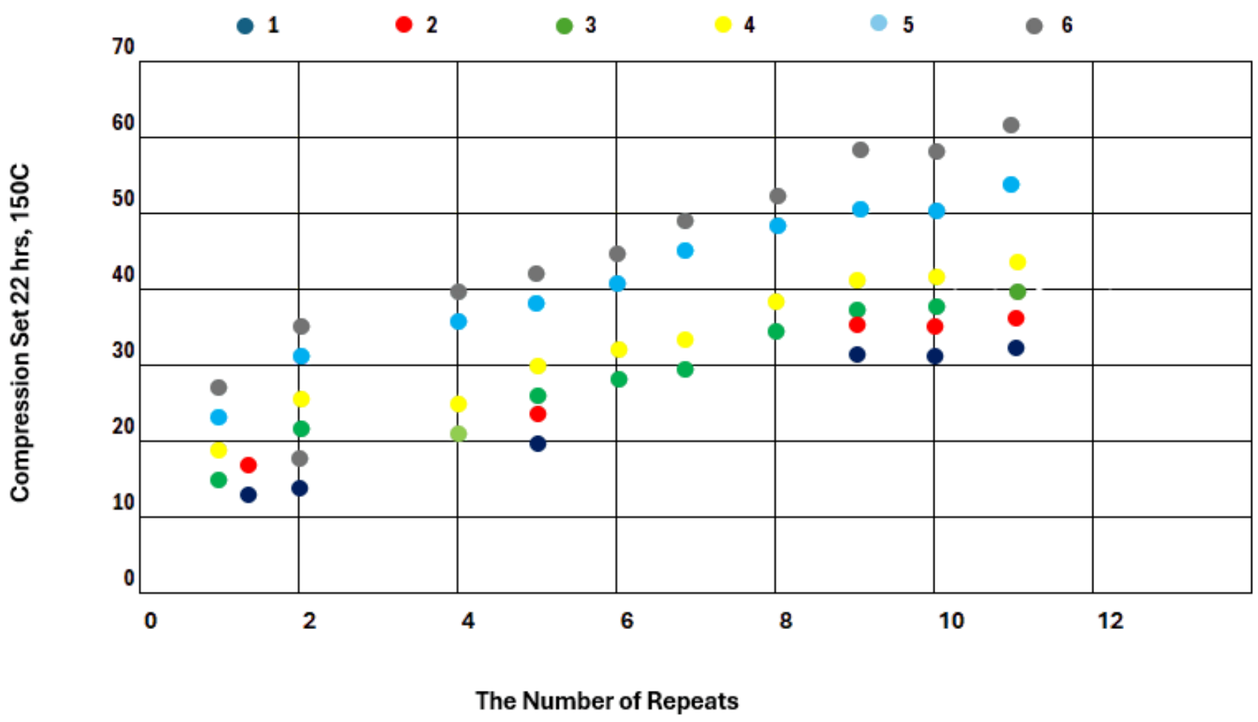
CNPC USA has developed a series of packer element compounds specifically for multiset packers driven by coiled tubing in various hydraulic fracturing operations. Packer elements for 5.50” casing have been manufactured at commercial scale with those compounds. Both the compounding and molding processes are under the quality control of CNPC USA.

APPLICATIONS

- Designed specifically for packers in coiled tubing intervention
- Include single elements of 80 and 90 Shore A hardness and can be applied to multi-element design
- Repeated setting and unsetting cycles to seal bottom sections during hydraulic fracturing, zone isolation and pressure testing.

FEATURES & BENEFITS

- CNPC-USA designed rubber formulations and quality-controlled compounding and molding processes
- Endure high temperatures up to 175°C via in-house testing.
- Withstand high pressure differential up to 70 Mpa via in-house testing.
- High resilience, low compression set and excellent abrasion resistance.
- 20 + reliable setting and unsetting cycles under150°C and 35Mpa pressure differential.
- Simple to prepare and use with existing field equipment
- Based on the results from side-by-side testing, the element with CNPC-USA formulation is significantly better than the market products in China and US in resilience and abrasion resistance.



The repeated compression set properties of CNPC USA designed formulations.

Molded Packer Element

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HT CAP-100

High-Performance Encapsulating Polymer

CNPC
CNPC USA Corp.

For: Extreme Drilling Conditions

HT CAP-100 is a high-performance encapsulator engineered for water-based drilling fluids in high temperature, high-pressure (HTHP), and ultra-deep wells—whether vertical or deviated. This synthetic polymer in an inverse emulsion delivers exceptional shale inhibition and cuttings encapsulation, ensuring maximum wellbore stability in extreme drilling environments.

FEATURES & BENEFITS

- Cuttings Encapsulation: Effectively reduces cuttings dispersion, enhancing drilling fluid performance
- Ultra-High Molecular Weight – Exceeds 10 million, ensuring superior performance in extreme drilling conditions.
- Exceptional Calcium & Magnesium Tolerance – Maintains stability even in high Ca^{2+} and Mg^{2+}environments.
- Fast-Acting & Easy to Use – Liquid inverse emulsion formulation for effortless pumping and rapid Dissolution
- Ideal for unconventional formations, directional drilling, and extended reach wells, HT CAP-100 delivers consistent performance and enhanced drilling efficiency.

- Keep HT CAP-100 in its original container when not in use.
- Store in a dry, cool, and well-ventilated area with lids securely closed.

APPLICATIONS

HT CAP-100 is designed for use in high-performance water based drilling fluids, providing superior shale inhibition and cuttings stability across various drilling conditions.

- Shale Stability Optimization: Adjust dosage based on shale lithology, typically ranging from 0.35–5lb/bbl.(1–14kg/m^3).
- Wellbore Integrity Support: Works in synergy with shale inhibitors, sealing agents, and lubricants, which should be alternately added to maintain optimal drilling fluid properties.

SPECIFICATIONS

- Appearance: Off-white liquid
- Polymer Activity: 28–32%
- Viscosity: 300–1500 cP
- Pour Point: < -20°F (-29°C)
- Water Solubility: Highly soluble

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UltraFrac™

High-Performance Frac Fluid

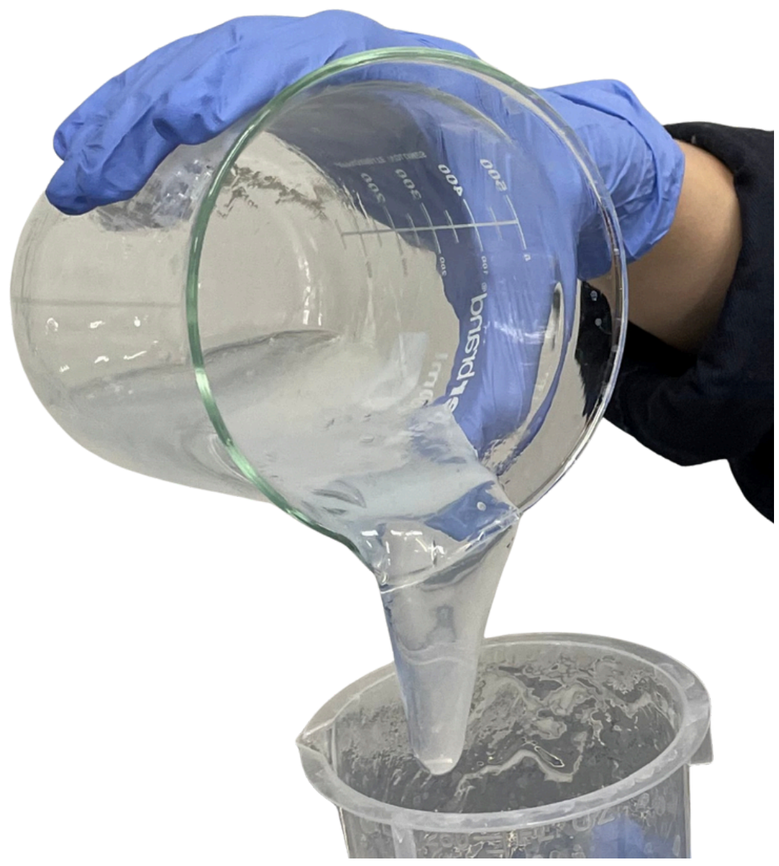
CNPC
CNPC USA Corp.

Ultra-High Temperature

UltraFrac is a high-performance fracturing fluid system specially designed for high temperature wells up to 230oC/446o F. The fluid has excellent thermal stability and post-frac cleanup performance. It solves the premature degradation issue of conventional guar-type fracturing fluids by using a specially designed synthetic polymer as the gelling gent in combination with a proprietary “green” temperature stabilizer. The fluid is easy to prepare and compatible with current on-the-fly operations in the fields. Post fracturing jobs, the fluid breaks into water thin liquid without any solid residues, making the fracture cleanup easy and more effective.

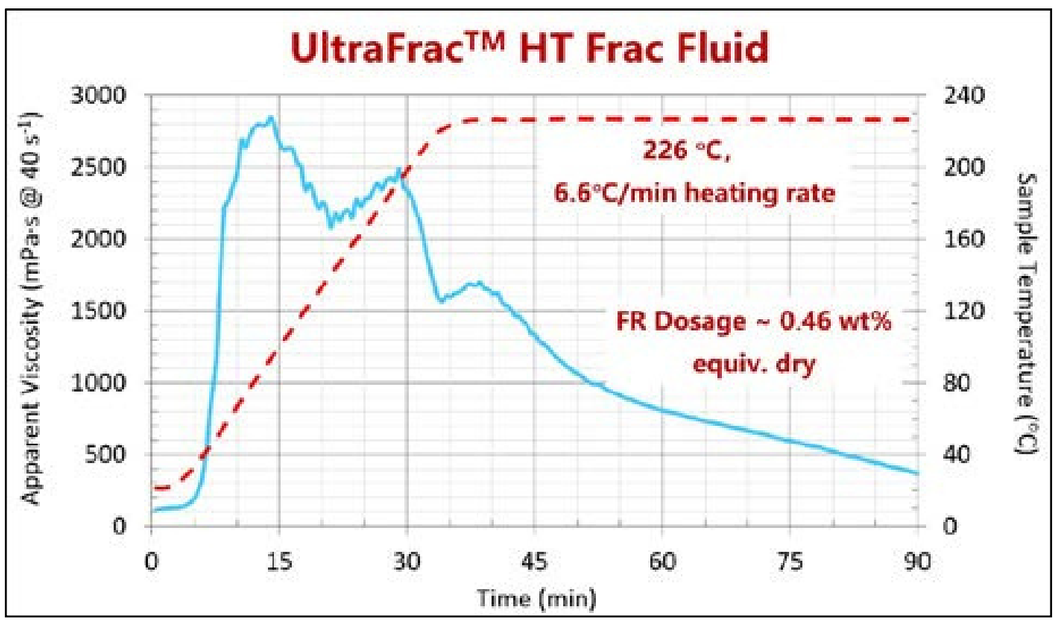
FEATURES & BENEFITS

- Ultra-high formation temperature, no precooling
- On-the-fly operation
- Low formation damage
- Low dosage and fast hydration of gelling agent
- Robust fluid rheology
- Simple to prepare and use with existing field equipment
- Environmentally friendly



FLUID COMPOSITION

UltraGel HT	Gelling Agent
SpeedySurf	Hydration Aid
DuraTemp	Temperature Stabilizer
UltraXHT	Delayed Crosslinker
SureBreakHT	HT Gel Breaker (Optional)



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G-2 Polymer

For: Water Conformance

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CNPC USA Corp.

Overview

G-2 is a polymer product for water conformance developed by CNPC USA. It is specially designed for oil fields that have experienced long-term water flooding to increase production. It is used for in-depth water plugging and conformance of water injection wells in areas with high water production ratio and low sweep efficiency. It has the characteristics of low initial viscosity, controllable gel formation time, high gel strength and good stability.

APPLICATIONS | RECOMENDED TREATMENT

When the cross-linking agent dosage is 1400 ppm, the initial viscosity and gelling time of the gelant could be controlled by controlling the amount of polymer (0.5-0.8%). Before gel formation, the viscosity of the gelant solution remained stable, which is beneficial for the gelant to penetrate deep into the formation and perform water conformance control in the reservoir matrix.

ADVANTAGES

- In liquid from that can be added in-situ
- Polymer dosage:0.50-0.80%
- Crosslinker dosage:1,000-2,000 ppm
- Polymer solution initial viscosity:1-3 cp
- Polymer gelling time:3-20 days
- No chromium ions, environmentally friendly
- Application temperature: 40-130 ℃

TYPICAL PROPERTIES

- Appearance: off-white opaque liquid
- Polymer activity:30.0%
- Specific Density:1.02-1.06g/cm3
- Viscosity:400-2,000 cp
- Flash Point: > 210F/100C
- Pour Point: < 0F/-18C
- Soluble in water

PACKAGING AND STOREAGE

- 265-Gal（900Kg) totes （IBCs） or 55-Gal（180Kg） drums
- Keep in the original container if it is not used all. Store the product in the containers with closed lids in a dry, cool and well-ventilated place

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G-4 Polymer

For: Water Conformance

CNPC
CNPC USA Corp.

Overview

G-4 is the polymer expandable emulsion particles developed by CNPC USA. It is specially designed for oil fields that have undergone long-term water flooding to increase production. It could be used for deep profile control and water plugging of water injection wells in areas with high water production ratio and low oil displacement efficiency. It has the characteristics of low initial viscosity of the solution, good injectability, controllable expansion ratio and time, and good blocking stability.

APPLICATIONS | RECOMENDED TREATMENT

G-4 polymer expandable emulsion particles plugging agent could be easily dispersed into the injection water during water flooding at a product concentration of 0.5- 1.5 % (particle concentration of 15,00-5,000 ppm) based on reservoir conditions and injection design.

ADVANTAGES

- In liquid from that can be added in-situ
- Polymer dosage:0.50-1.50%
- Particle initial diameter D50:5-15μm
- Particles dispersion initial viscosity:3-5 cp
- Particle expansion time: 5-60 days
- Particle size expansion:3-20 times
- Application temperature: 40-130 ℃

TYPICAL PROPERTIES

- Appearance: off-white opaque liquid
- Polymer activity:30.0%
- Specific Density:1.02-1.06g/cm3
- Viscosity:400-2,000 cp
- Flash Point: > 210F/100C
- Pour Point: < 0F/-18C
- Dispersible in water

PACKAGING AND STOREAGE

- 265-Gal（900Kg) totes （IBCs） or 55-Gal（180Kg） drums
- Keep in the original container if it is not used all. Store the product in the containers with closed lids in a dry, cool and well-ventilated place

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FA 2 Ultra-Low

IFT Surfactant System

CNPC
CNPC USA Corp.

Overview

FA 2 is an ultra-low interfacial tension oil displacement surfactant system, containing mainly non-ionic surfactants. It is a patented, highly efficient oil displacement agent, specially designed for applications in chemical flooding to enhance oil recovery

ADVANTAGES

- Salinity tolerance: up to 30,000 mg/L
- Application temperature: up to 60 ℃
- Ultra-low interfacial tension: lower to ~ X 10-3 mN/m
- Ultra-high recovery rate, more than 95% oil recovery from laboratory core flooding experiments

APPLICATIONS | RECOMENDED TREATMENT

- Used for surfactant-based chemical enhanced oil recovery for water flooding reservoirs.
- Laboratory phase behavior experiments showed the easy formation of Windsor III type microemulsion.
- Core flooding experiments using this oil displacement surfactant system resulted in 70-98% oil recovery
- Field application since 2019cle expansion time: 5-60 days
- Field trial OOIP improvement: 3-10%
- Recommended treatment dosage: 0.2% to 2% 130 ℃

TYPICAL PROPERTIES

- Appearance: dark brown liquid
- Polymer activity:30.0%
- Specific Density:0.97-1.05g/cm3
- Viscosity:<1,000 cp
- Flash Point: > 210F/100C
- Pour Point: < 32F/0C
- Soluble in water

PACKAGING AND STOREAGE

- 265-Gal（900Kg) totes （IBCs） or 55-Gal（180Kg） drums
- Store the product in the containers with closed lids in a dry, cool and well-ventilated place

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