



# RECYCLING OF DRILLING FLUID

## ENVIRONMENTALLY FRIENDLY AND ECONOMICAL DRILLING FLUID SOLUTION

With an ever-growing focus on sustainability, reuse of bentonite-based drilling fluids is key priority when developing and optimizing our products. All products under the Cebo or BAROID IDP umbrella are designed to offer a predictable drilling fluid with awareness for the environment.

Recycling of a drilling fluid reduces environmental impact, lowers cost and promotes a more sustainable drilling process. The training program and technical support of BAROID IDP is designed to promote the whole process of mixing to maintaining the drilling fluid.



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## BENEFITS OF BAROID & CEBO PRODUCTS

- Customized fluids are designed to facilitate recycling, to promote extended use, and support clean passage through the recycling equipment. Our products sustain optimized viscosity and enhance functional properties.
- Reuse of drilling fluids to decrease the carbon footprint.
- Reuse use of drilling fluids to decrease costs.
- Extended use of drilling fluids is part of the training program.
- Efficient mixing.
- Effective operation.



### RECYCLING

Mixing TUNNEL-GEL® PLUS, TUNNEL-GEL® MAX & CEBOGEL® OCMA is efficient due to the balanced design of the products. Due to the nature of the components, the fluid is capable of passing easily through the shaker screens.



### MAINTENANCE

Addition of TUNNEL-GEL® PLUS, TUNNEL-GEL® MAX, CEBOGEL® OCMA or specialized BAROID IDP polymers might be needed to maintain the properties of the drilling fluid.



### MIXING

Mixing TUNNEL-GEL® PLUS, TUNNEL-GEL® MAX, CEBOGEL® OCMA & BAROID IDP polymers is first in the essential steps of a drilling operation. All products are designed to offer efficient mixing when using dedicated mixing equipment, respecting hydration time and following proper order-of-addition.

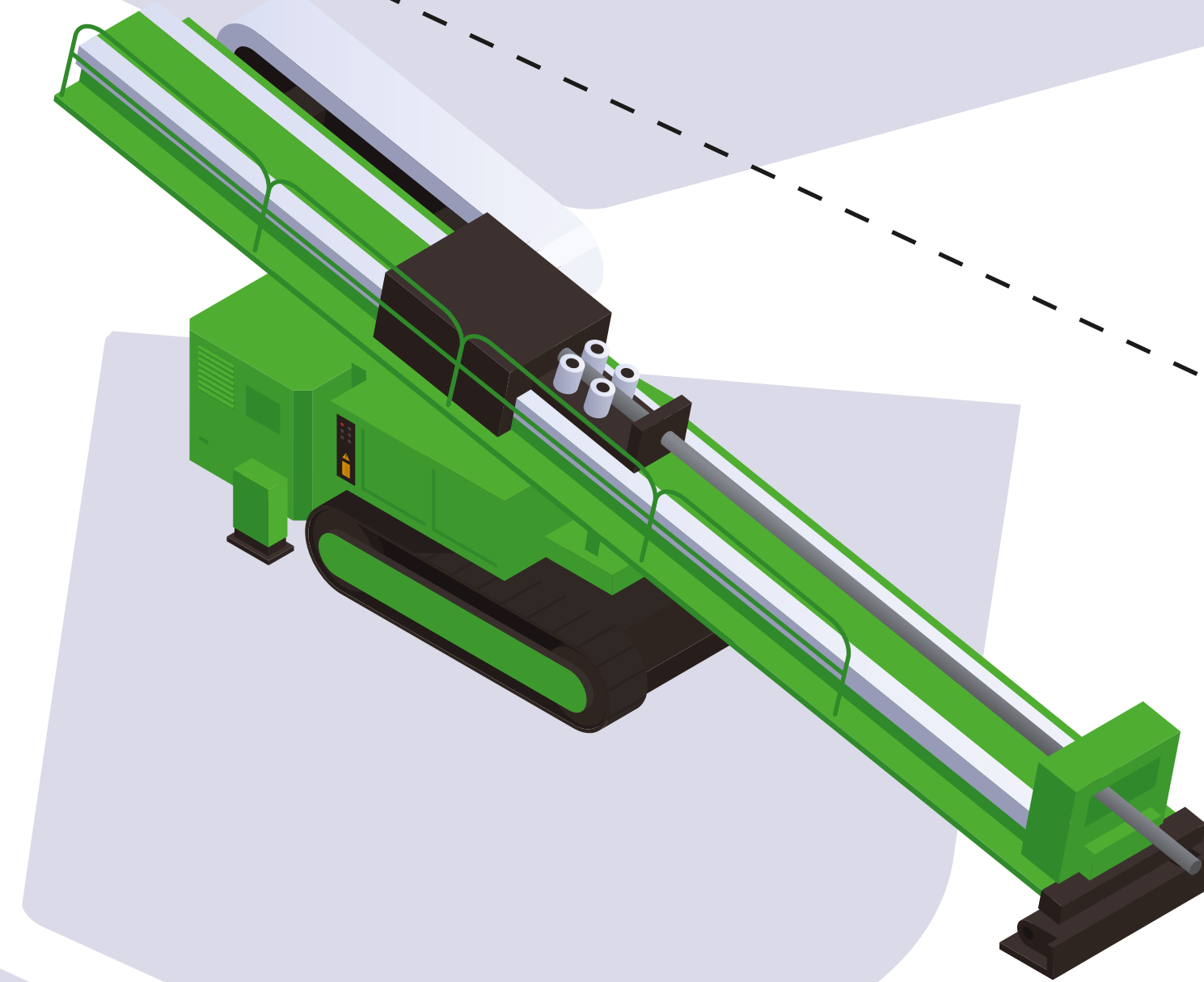
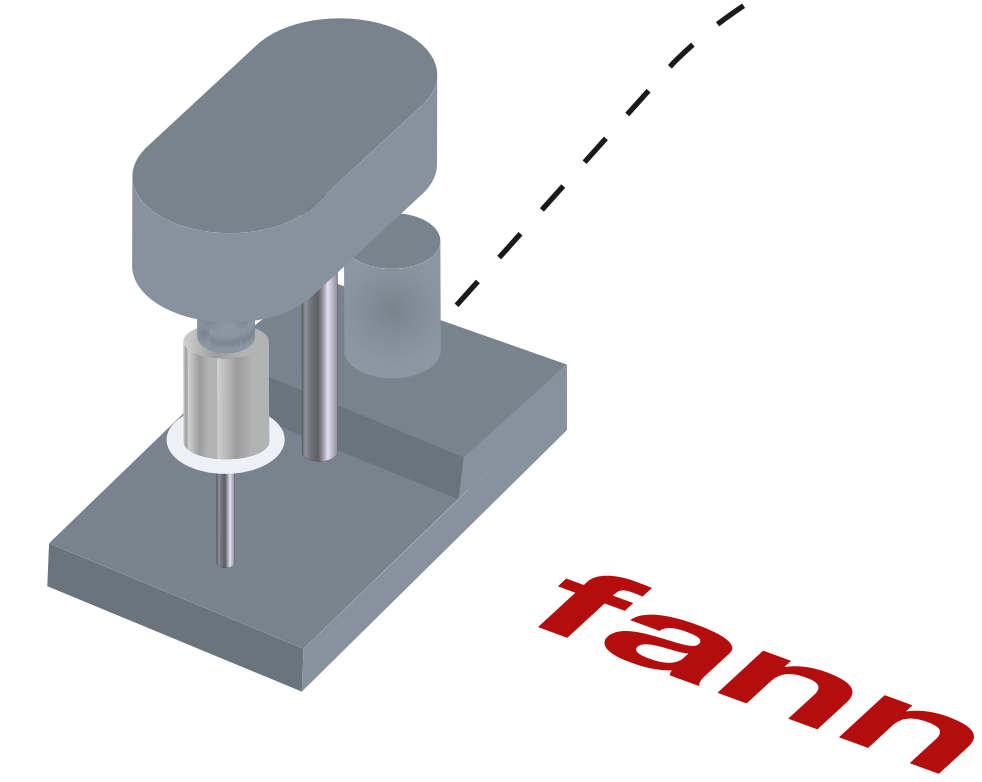
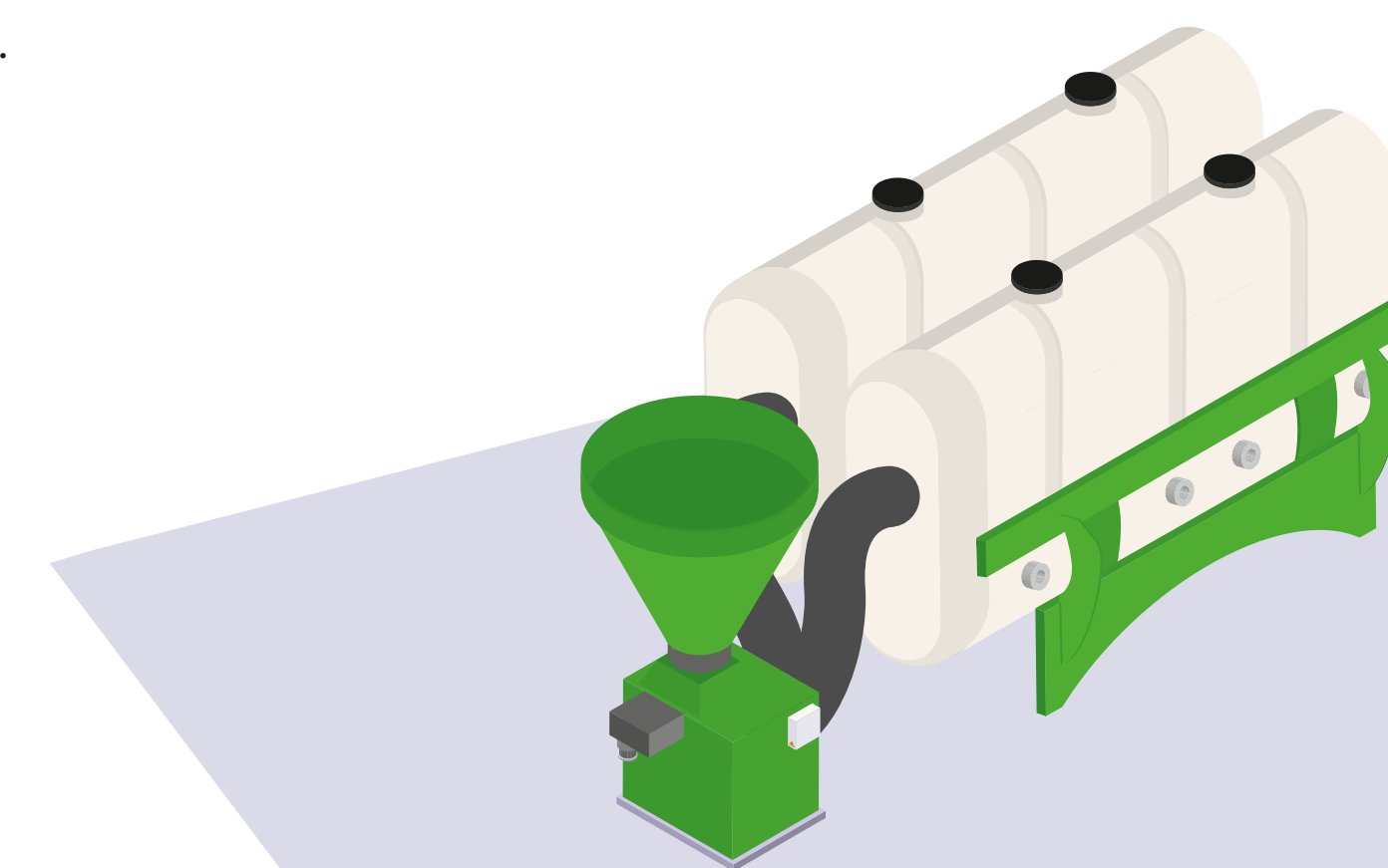
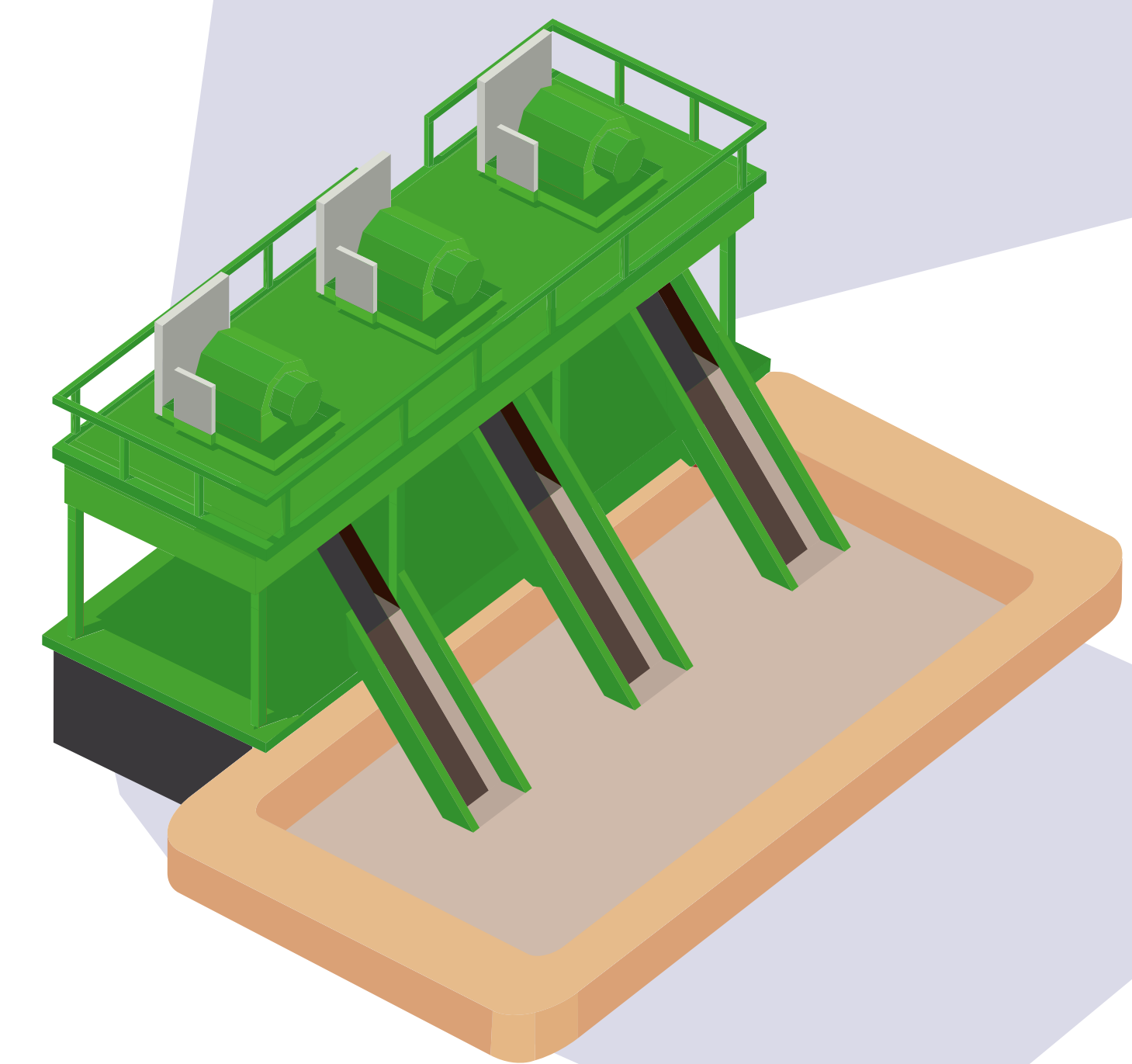
### KEY PROPERTIES IN THE RECYCLING PROCESS

Drilling fluid properties should be customized for total project management.

- 1. OPTIMAL VISCOSITY**  
Engineered drilling fluids allow for consistent and manageable viscosity that reduces excess pressures and supports efficient recycling.
- 2. CUTTINGS SUSPENSION AND TRANSPORT**  
Proper selection of drilling additives suspends and transports cuttings for optimal bore advancement and hole cleaning. Inhibition of reactive solids contributes to readily removable cuttings, resulting in a sustainable recycled drilling fluid.
- 3. SOLIDS REMOVAL**  
Efficient removal of cuttings and solids from a properly engineered drilling fluid is imperative for continued maintenance of fluid properties.

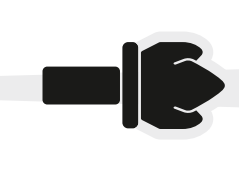
### TESTING FLUID PROPERTIES

After each phase in the process, the drilling fluids, containing TUNNEL-GEL® PLUS, TUNNEL-GEL MAX, CEBOGEL® OCMA & BAROID IDP polymers, should be checked and maintained using certified FANN® testing equipment.



## RECYCLE-READY VISCOSIFIERS

TGP



Drilling diameter



OCMA



### TUNNEL-GEL® PLUS

TUNNEL-GEL® PLUS is a bentonite-based viscosifier, defined by its lower mixing ratio, and designed to be used in small-diameter HDD operations. The product's lower mixing ratio creates subsequent low gel strength in a drilling fluid. The enhancement additives are specially selected to provide stable performance and promote re-use after recycling.

#### TUNNEL-GEL® PLUS allows

- To control the fluid & solids with stable performance in small diameter operations
- Easy recycling & re-use



### TUNNEL-GEL® MAX

MAX is a Bentonite-based viscosifier, defined by its higher mixing ratio, and designed to be used in larger-diameter HDD operations. The product's higher mixing ratio allows for increased Bentonite content per volume and creates subsequent high gel strength in a drilling fluid. The Bentonite-based gel strength allows for both efficient transports of drilled solids - regardless of lower annular velocity, and maintenance of its properties even after multiple re-uses.

#### TUNNEL-GEL® MAX allows

- To control the fluid & solids with stable performance in medium diameter operations
- Easy recycling & re-use



### CEBOGEL® OCMA

OCMA is a versatile drilling bentonite designed for large-diameter, long distance HDD operations given the high gel-strengths and stable viscosity. CEBOGEL® OCMA can be recycled and reused efficiently.

#### CEBOGEL® OCMA allows:

- To control the fluid & solids with stable performance in large diameter operations
- Easy recycling & re-use

## BAROID IDP POLYMER ADDITIVES



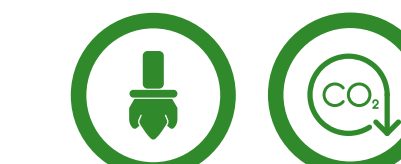
### EZ MUD® GOLD

EZ-MUD® GOLD clay and shale stabilizer products provide inhibition of clay and shale in water-based drilling fluids.



### QUIK TROL® LV

QUIK-TROL® LV products are modified natural cellulosic polymers which provide filtration control in water-based drilling fluids.



### DRILLING AND MAINTAINING THE DRILLING FLUID

Managing the drilling fluid, during the operation, is essential to overcoming the unique challenges of the encountered geology.