

# TIGER BULLETS

**TIGER BULLETS\* additive is exclusively distributed globally by Alpine Specialty Chemicals.**

TIGER BULLETS additive can be used in lost circulation conditions as well as a loss prevention material made from renewable natural resources. TIGER BULLETS additive is a mixture of fiber plugging agents that contain a wide range of particle distribution specially designed to quickly seal off permeable formations. TIGER BULLETS additive seals micro fractures and prevents filtrate as well as whole mud damage to producing formations.

## ADVANTAGES

- Effective bridging and sealing agent for a wide range of formations.
- Inert material with minimum effect on mud properties.
- Compatible with all mud systems and other lost circulation materials.
- Easily mixed and dispersed into the mud system.
- Has been utilized with MWD and mud motor in concentrations up to 35 ppb.
- Used for loss prevention and lost circulation as well as helps in reducing torque and drag and prevents differential sticking.

## Typical Physical Properties

Physical appearance	Tan granular material
Specific gravity	1.2-1.6
Solubility in water/oil/synthetic	Insoluble
Size range	14-250 Mesh (50-1,500 micron)
Reactivity	Inert

## APPLICATIONS

TIGER BULLETS additive is a superior bridging agent, field-proven to be highly effective when drilling high-permeability/high-porosity zones with high differential pressures. TIGER BULLETS additive is designed to bridge and seal permeable formations, reducing the possibility of stuck pipe, controlling lost circulation and providing filtration control.

The recommended treatment is 4 - 8 lb/bbl (11 - 23 kg/m<sup>3</sup>) to reduce differential sticking tendencies. After initial treatment, periodic treatments should be used to maintain the desired concentration.

For seepage losses, normal treatments are from 10 - 20 lb/bbl (29 - 57 kg/m<sup>3</sup>). Concentrations in the 20 - 35 lb/bbl (57 - 100 kg/m<sup>3</sup>) range are recommended for more severe lost circulation. Pilot testing is recommended before adding high concentrations because the material absorbs a small quantity of liquid when added to the mud system.

TIGER BULLETS additive should be added to the mud system through a mixing hopper into a pit with good agitation, such as the suction pit. It is most effective when maintained at the desired concentration throughout the circulating system. However, treatment methods such as frequent periodic additions, sweeps, batch- or slug-treatments and pills have all been used successfully.

TIGER BULLETS additive is compatible with all mud systems and can be used in combination with other lost circulation materials, including nut plug, mica, sized calcium carbonate, gilsonite, etc.

TIGER BULLETS additive residue can be partially removed using standard treatments such as hydrochloric acid or alkaline hypochlorite solutions. TIGER BULLETS additive is approximately 44% acid soluble in 15% HCl at 212° F (100° C).

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## LIMITATIONS

- The coarser material can be removed from the circulating system by shale shakers and solids-control equipment.
- Biodegradable and can be subject to bacterial degradation. If fermentation is indicated, a biocide should be used at the recommended maximum treatment level.
- Absorbs a small quantity of liquid when added to a mud system and can elevate flow properties when used at very high concentrations.
- Treatments with additional wetting agent may be required in low stability or lightly treated oil-base mud because of the high surface area of this slightly absorbing material.

## TOXICITY AND HANDLING

Bioassay information is available upon request.

Handle as an industrial chemical, wearing protective equipment and observing the precautions described in the Material Safety Data Sheet (MSDS).

Dust can form an explosive mixture in the air. Keep away from open flames or other sources of ignition.

## PACKAGING AND STORAGE

TIGER BULLETS additive is packaged in 25 lb (11.4 kg), multi-wall, paper sacks).

Store in a dry, well-ventilated area. Keep container closed. Store away from incompatibles. Follow safe warehousing practices regarding palletizing, banding, shrink-wrapping and/or stacking.