TA-21
Building 21-257; 21-57
AST
Steamplant
Diesel Spill

TA21

MATERIAL SAFETY DATA SHEET

HOLEPLUG® 3/8

Revision Date: 06/06/2000

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: HOLEPLUG® 3/8
Synonyms: None
Chemical Family: Mineral
Application: Weight Additive

Manufacturer/Supplier
Baroid Drilling Fluids
a Product Service Line of Halliburton Energy Services, Inc.
P.O. Box 1675
Houston, TX 77251

Telephone: (281) 871-4000
Emergency Telephone: (800) 665-8280 or (713) 676-3000
CHEMTREC: (800) 424-9300

Prepared By
Product Stewardship
Telephone: 1-580-251-4335

2. COMPOSITION/INFORMATION ON INGREDIENTS

Substance	Weight Percent (%)	ACGIH TLV-TWA	OSHA PEL-TWA
Bentonite 1302-78-9	80 - 100%	Not applicable	Not applicable
Crystalline silica, quartz 14808-60-7	1 - 5%	0.05 mg/m3	0.1 mg/M3

3. HAZARDS IDENTIFICATION

Hazard Overview
May cause eye irritation. Potential carcinogen. May cause delayed injury to lungs.

10628

4. FIRST AID MEASURES

Inhalation
If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Skin
Wash with soap and water. Get medical attention if irritation persists.

Eyes
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Ingestion
Under normal conditions, first aid procedures are not required.

Notes to Physician
Not Applicable

5. FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined

Fire Extinguishing Media
All standard firefighting media.

Special Exposure Hazards
Not applicable.

Special Protective Equipment for Fire-Fighters
Not applicable.

NFPA Ratings: Health 1, Flammability 0, Reactivity 0

HMIS Ratings: Flammability 0, Reactivity 0, Health 1

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures
Use appropriate protective equipment. Avoid creating and breathing dust.

Environmental Precautionary Measures
None known.

Procedure for Cleaning/Absorption
Scoop up and remove.

7. HANDLING AND STORAGE

Handling Precautions
Avoid creating or inhaling dust.

Storage Information
Store in a cool, dry location.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls
Use in a well ventilated area.

Respiratory Protection
Not normally needed. But if significant exposures are possible then the following respirator is recommended. Dust/mist respirator.

Hand Protection
Normal work gloves.

Skin Protection
Normal work coveralls.

Eye Protection
Wear safety glasses or goggles to protect against exposure.

Other Precautions
None known.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Color:	Light brown
Odor:	Odorless
pH:	7.5
Specific Gravity @ 20 C (Water=1):	2.12
Density @ 20 C (lbs./gallon):	Not Determined
Bulk Density @ 20 C (lbs/ft3):	51
Boiling Point/Range (F):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Insoluble
Solubility in Solvents (g/100ml):	Not Determined
Solubility in Sea Water (g/100ml):	Insoluble Sinks
VOCs (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data: Stable

Hazardous Polymerization: Will Not Occur

Conditions to Avoid
None anticipated

Incompatibility (Materials to Avoid)
None known.

Hazardous Decomposition Products
None known.

Additional Guidelines
Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure
Eye or skin contact, inhalation.

Inhalation
May cause respiratory irritation. May cause silicosis, which reduces lung function. The lung damage can lead to heart problems.

Skin Contact
None known.

Eye Contact
Dust may cause irritation and inflammation.

Ingestion
None known

Aggravated Medical Conditions
Lung disorders.

Chronic Effects/Carcinogenicity
Contains crystalline silica which may cause a delayed, progressive lung disease (silicosis). The IARC and NTP have determined there is sufficient evidence in humans of the carcinogenicity of crystalline silica.

Other Information
None known.

Toxicity Tests

Oral Toxicity: Not determined.

Dermal Toxicity: Not determined

Inhalation Toxicity: Not determined

Primary Irritation Effect: Not determined

Carcinogenicity
Not determined

Genotoxicity: Not determined

Reproductive/Developmental Toxicity: Not determined

12. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air)
Not determined

Persistence/Degradability
Not determined

Bio-accumulation
Not Determined

Ecotoxicological Information

Acute Fish Toxicity:	Not determined
Acute Crustaceans Toxicity:	Not determined
Acute Algae Toxicity:	Not determined

Chemical Fate Information
Not determined

Other Information
Not applicable

13. DISPOSAL CONSIDERATIONS

Disposal Method
If not contaminated, reuse product. Bury in a licensed landfill according to federal, state, and local regulations.

Contaminated Packaging
Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation

DOT

Not restricted

Canadian TDG

Not restricted

ADR

Not restricted

Air Transportation

ICAO/IATA

Not restricted

Sea Transportation

IMDG

Not restricted

Other Shipping Information

Labels: None

15. REGULATORY INFORMATION

US Regulations

US TSCA Inventory
All components listed on inventory.

EPA SARA Title III Extremely Hazardous Substances
Not applicable

EPA SARA (311,312) Hazard Class
Acute Health Hazard
Chronic Health Hazard

EPA SARA (313) Chemicals
This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372).

EPA CERCLA/Superfund Reportable Spill Quantity For This Product
Not applicable.

EPA RCRA Hazardous Waste Classification
If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.

California Proposition 65
The California Proposition 65 regulations apply to this product.

MA Right-to-Know Law
One or more components listed.

NJ Right-to-Know Law

One or more components listed.

PA Right-to-Know Law
One or more components listed.

Canadian Regulations

Canadian DSL Inventory
All components listed on inventory.

WHMIS Hazard Class
D2A Very Toxic Materials

16. OTHER INFORMATION

The following sections have been revised since the last issue of this MSDS
Not applicable

Additional Information
For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Product Stewardship at 1-580-251-4335.

Disclaimer Statement
This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

****END OF MSDS****

North America 1 (888) 437. 7177 Other Locations: 604. 792. 6677 Facsimile: 604. 792. 6144

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Contact your Falcon GDP Sales Rep

ABSOLUTE ONLINE PRIVACY

HOLEPLUG®

Graded Sodium Bentonite

Description

HOLEPLUG size-graded bentonite is a naturally-occurring Wyoming sodium b clay used to seal and plug earthen boreholes. HOLEPLUG is mined from spec selected ore bodies which exhibit a high swelling capability. HOLEPLUG will f through a standing column of water in the hole and reach the bottom with dela hydration without bridging to the wall of the borehole. Complete fill of the annu can be achieved, and bridging of the particles in the upper hole is minimized. fill of the annular space is necessary to form an effective, long-term plug in co with environmental regulatory requirements.

HOLEPLUG is available in two particle size grades:

- HOLEPLUG 3/4" (100% of particles pass through 3/4" screen; all particles on 3/8" screen)
- HOLEPLUG 3/8" (100% of particles pass through 3/8" screen; all particles on 1/4" screen)

Applications/Functions

- Highly recommended for use in grouting annulus in all types of wells, parti environmental monitoring well applications
- Seal above gravel packs
- Plug decommissioned boreholes
- Seal abandoned earthen cavities
- Seal around conductor pipe
- Seal lost circulation zones
- Shut off artesian flow

Advantages

- Prevents entry of surface water into boreholes
- High swelling potential
- In situ swelling to provide a superior grout and excellent casing stabilizatic
- Easier to apply than pellets
- Cost effective
- Simple to apply, mixing not required
- Prevents vertical movement of fluids in the hole between porous zones
- Forms a permanent, flexible downhole seal
- Allows hole reentry
- Rehydratable

Typical Properties

- Bulk density, lb/ft^3

  HOLEPLUG 3/4" - 71.8 (as packaged)

  HOLEPLUG 3/8" - 68.8 (as packaged)

- Volume of one 50-lb sack

  HOLEPLUG 3/4" - 0.70 ft^3 or 0.026 yd^3

  HOLEPLUG 3/8" - 0.73 ft^3 or 0.027 yd^3

- Moisture - 17%
- Permeability - 1.5×10^{-9} cm/sec (in fresh water)
- Appearance - beige to tan chips
- Specific gravity 2.6
- Shear strengh after hours of swelling

  24 hours - 2.4 psig

  72 hours - 3.8 psig

Recommended Treatment

Plugging and Stemming Drill Holes

Due to shipping, handling and possible slight dehydration, a small amount of f
bentonite particles may be present. For optimum results, HOLEPLUG should b
over a mesh or screen with 1/4" openings to "sift out" the smaller particles. Th
should he large enough (approx. 1 sq. yd.) to be folded into a "V" shape to allo
while the product is being poured into the hole. Also, HOLEPLUG should be p
slowly (allow approximately two minutes to pour a 50-lb bag).

1. Position the screen with the lower end placed over the borehole

2. Slowly pour HOLEPLUG down the "V" so that fine particles fall through the
before the larger particles fall into the borehole

3. Fill hole as required (above static water level or to ground level).

4. Observe all regulatory specifications.

Stopping Loss of Circulation and Stabilizing Unconsolidated Formations

1. Pull drill pipe out of hole.
2. Pour HOLEPLUG into hole to fill above problem zone.
3. Drill ahead slowly with reduced pump pressure.

Plugging flowing wells

- Pour HOLEPLUG into hole until water flow subsides or hole is filled to sur

Amounts of HOLEPLUG Required for Plugging Applications				
Hole Diameter (inches)	Hole Volume (ft^3/ft)	Pounds HOLEPLUG Needed to Fill One Foot	Feet Filled by One Bag HOLEPLUG	B HOLE Neede 1
2	0.022	1.6	31.3	
2 1/2	0.034	2.5	20.0	
3	0.049	3.5	14.3	
3 1/2	0.067	4.8	10.4	
4	0.087	6.3	7.9	1
4 1/2	0.110	7.9	6.3	1

5	0.0136	9.8	5.1	1
5 1/2	0.165	11.9	4.2	2
6	0.196	14.1	3.5	2
6 1/2	0.230	16.6	3.0	3
7	0.267	19.2	2.6	3
7 1/2	0.307	22.1	2.3	4
8	0.349	25.1	2.0	5
8 1/2	0.394	28.4	1.8	5
9	0.442	31.8	1.6	6
9 1/2	0.492	35.4	1.4	7
10	0.545	39.2	1.3	7
11	0.660	47.5	1.1	9
12	0.785	56.5	0.89	11
15	1.227	88.3	0.57	17
18	1.767	127.2	0.39	25
20	2.182	157.1	0.32	31
25	3.409	245.4	0.20	49
30	4.909	353.4	0.14	70

Note: This product has been certified by the National Sanitation Foundation (N
contribute no adverse health problems when used as the manufacturer recom
the construction of potable water wells.

Packaging:

HOLEPLUG graded bentonite is packaged in multiwall paper bags containing
pounds (22.7 kg).

Availability:

HOLEPLUG can be purchased by contacting Falcon GDP Inc..

Return to:

Falcon GDP Home	Technical Assistance, Research & Development	Alphabetic List of Product Data Sheets	Horizontal Directional Drilling Products	How to [illegible] Falcon [illegible] Respo[illegible]
Development and Remediation Products	Environmental Drilling Products	Pipe Subprocessors	Minerals Exploration Products	Water W[illegible] Pro[illegible]

Los Alamos

Los Alamos National Laboratory
Los Alamos, New Mexico 87545

WATER QUALITY & HYDROLOGY GROUP, ESH-18
FAX TRANSMITTAL SHEET

FAX #: (505) 665-9344 **VERIFICATION #: (505) 665-0453**

DATE: March 12, 2002 LOG NO: WQ&H-FAX-02-

FROM: Steve Rae PHONE #: 665-1859

TO: John Young ORG: NMED / HWB

FAX #: 827-1545 PHONE #:

TO: ORG:

FAX #: PHONE #:

TO: ORG:

FAX #: PHONE #:

MESSAGE: John - For your review -

- We will use this product to plug the core holes around the TA-21 Steam Plant unless you have objections -

- Please call me at 665-1859 or Robin Reynolds at 699-1945 -

Thanks - Steve Rae

NUMBER OF PAGES TO FOLLOW: 11

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