SAFETY DATA SHEET

1. IDENTIFICATION

Product Identifier	Clay-Stop
Recommended Use	Not Available
Recommended Restrictions	Not Available

Manufacturer/Importer/Supplier/Distributor information

Company Name	Velocity Drilling Fluids, LLC
Company Address	P.O. Box 1120
	Mandeville, LA 70471
Telephone	985-893-6600
Emergency Phone	855-227-3584
Website	www.VelocityDrillingFluids.com

2. HAZARDS IDENTIFICATION

GHS classification of the substance or mixture and any national or regional information.	None. Material is not hazardous.
GHS label elements, including precautionary statements.	None. Material is not hazardous.
Other hazards which do not result in classification or are not covered by the GHS.	Material not tested as mist. Water content must first evaporate before dust formation occurs.

Choline chloride with a particle size of > 500 micron diameter and 2.3 wt% moisture are classified as ST1 dust explosion and have a lower explosion limit of 125 g/m^3, overpressure of 3.5 bar, K_{st} of 4 bar-m/s, a minimum ignition energy > 106 mJ and an ignition temperature of 430°C. Choline chloride particles < 63 um are classified as ST1 dust explosion.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance:

Chemical identity.	See section 3.2.
Common name, synonyms, etc.	See section 3.2.
CAS number, EC number, etc.	See section 3.2.
Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance.	See section 3.2.

Mixture:

The chemical identity and concentration or concentration ranges

Chemical Identity:	Concentration:	CAS No.:
Choline Chloride	60-77%	67-48-1

of all ingredients which are hazardous within the meaning of the GHS and are present above their cutoff levels.	Water	23-40%	7732-18-5

4. FIRST AID MEASURES

Description of first aid measures.

Inhalation: For significant exposure to any nuisance particles (dust or mist), remove to fresh air and, if there is difficulty breathing, get medical attention. Breathing dust from any source may cause respiratory irritation.

Breathing large amounts of dust from any source may cause injury.

Skin contact: No first aid is required. As a precaution, wash with soap and water, and wash contaminated clothing before reuse.

Eye contact: To prevent mechanical irritation, flushwith clean, low-pressure water.

Ingestion: No first aid required for ingesting small amounts.

Most important symptoms/effects.

Acute: None.

Delayed: None.

Indication of immediate medical attention and special treatment needed, if necessary.

There are no adverse effects from exposure to this product.

5. FIREFIGHTING MEASURES

Suitable (and unsuitable) extinguishing media.

Water, Foam, CO_2, Dry Chemical.

Specific hazards arising from the chemical.

No specific hazards. Combustion will produce compounds of carbon, hydrogen, nitrogen, chlorine and oxygen.

Aqueous products support combustion only after evaporation of the water content.

Special protective equipment and precautions for firefighters.

None.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures.

For non-emergency personnel: No specific protective equipment is required.

For emergency responders: No specific protective equipment is required.

Environmental precautions.

None.

Methods and materials for containment and cleaning up.

Use absorbent, vacuum or sweep material and place in a disposal container.

7. HANDLING AND STORAGE

Precautions for safe handling.

Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities.

Ensure containers are properly secured before moving.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters.

None established.

Appropriate engineering controls.

Provide ventilation and particulate control to maintain airborne levels below the exposure guidelines.

Individual protection measures, such as personal protective equipment.

Eye protection: If there is a potential for splashing, wear chemical goggles.

Skin protection: No additional precautions.

Respiratory protection: In typical use, no respiratory protection should be needed. In confined or poorly

ventilated areas or emergency and other conditions where the exposure guidelines may be greatly exceeded, use an approved positive pressure self-contained breathing apparatus.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties.

Appearance (physical state, color, etc.).	Clear to light amber/pale yellow.
Odor.	Faint amine odor.
Odor threshold.	Threshold not determined.
pH.	5 - 8 at 10 g/L water @ 20°C
Melting point/freezing point.	-0.4°F (-18°C)
Initial boiling point and boiling range.	>125°C (>257°F)
Flash point.	Not applicable.
Evaporation rate.	Not available.
Flammability (solid, gas).	Not flammable.
Upper/lower flammability or explosive limits.	Not flammable.
Vapor pressure.	Only water vapor is present.
Vapor density.	Not available.
Relative density.	Not applicable.
Solubility (ies).	Completely miscible in water.
Partition coefficient: n-octanol/water.	Log P_{OW} < 0
Auto ignition temperature.	Not available.
Decomposition temperature.	Not available.
Viscosity.	26 mPa-s @ 20°C
Oxidizing properties.	Not available.

10. STABILITY AND REACTIVITY

Reactivity.	Not considered reactive.
Chemical stability.	Stable.
Possibility of hazardous reactions.	No hazardous reactions expected.
Conditions to avoid (e.g., static discharge, shock or vibration).	Do not heat to boiling or decomposition in sealed container.
Incompatible materials.	Avoid contact with strong acids and bases, as well as iron, mild and galvanized steel.
10.6. Hazardous decomposition products.	Compounds of carbon, hydrogen, nitrogen, chlorine and oxygen.

11. TOXICOLOGICAL INFORMATION

Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact);	Not available.
Symptoms related to the physical, chemical and toxicological characteristics;	Not available.
Delayed and immediate effects and also chronic effects from short- and long-term exposure;	Not available.
Numerical measures of toxicity (such as acute toxicity estimates).	100% Choline Chloride: LD_{50} – 3400 mg/kg oral (rat) LD_{50} – 450 mg/kg intraperitoneal (rat) LD_{50} – 3900 mg/kg oral (mouse) LD_{50} – 320 mg/kg intraperitoneal (mouse) LD_{LO} – 735 mg/kg subcutaneous (mouse) LD_{50} – 53 mg/kg intravenous (mouse) LD_{LO} – 5 mg/kg intravenous (dog)

LD_{LO} – 25 mg/kg intravenous (cat)

LD_{LO} – 500 mg/kg intraperitoneal (rabbit) LD_{LO} – 1 g/kg subcutaneous (rabbit) LD_{LO} – 1100 g/kg intravenous (rabbit) LD_{LO} – 1 g/kg rectal (rabbit)
LD_{LO} – 1500 mg/kg (frog)
TD_{LO} – 331 mg/kg/14 weeks continuous oral (rat)

TD_{LO} – 4950 mg/kg/30 days intermittent intraperitoneal (rat)

TD_{LO} – 6250 mg/kg/10 weeks intermittent intraperitoneal (rat)

TD_{LO} – 3564 mg/kg/5 weeks intermittent intraperitoneal (rat)

12. ECOLOGICAL INFORMATION

Ecotoxicity (aquatic and terrestrial, where available).	100% Choline Chloride: 10,000 mg/L 24 weeks (mortality) coho salmon, silver salmon.
Persistence and degradability.	Not determined. Expected to be readily biodegradable.
Bioaccumulative potential.	Not bioaccumulative.
Mobility in soil.	Not determined.
Results of PBT and vPvB.	Not determined.
Other adverse effects.	Not determined.

13. DISPOSAL CONSIDERATIONS

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging.

Product: Not considered a hazardous waste under US Federal Hazardous Waste Regulations (40 CFR 261). Consult local regulations regarding proper disposal as they may be more restrictive or otherwise different from Federal/International regulations.

Packaging: Dispose of packaging contaminated by product in accordance with regulations.

14. TRANSPORT INFORMATION

UN number.	Not hazardous.
UN proper shipping name.	Not hazardous.
Transport hazard class (es).	Not hazardous.
Marine pollutant (Yes/No).	No.
Special precautions which a user needs to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises.	Not hazardous.
Transportation in bulk according to Annex II of MARPOL 73/78 and the IBC Code.	Not hazardous.

15. REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product in question.

US Federal:	CERCLA:	Reportable Quantity – None (40 CFR 302.4)
	CWA:	Release into a waterway may require reporting to the National Response Center @ 800-424-8802 (40 CFR 116.4).
	FDA/USDA:	Follow Good Manufacturing Practice (GMP).
	FIFRA:	Not applicable.
	OSHA:	This product is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

	PSM:	This product is not subject to Process Safety Management (29 CFR 1910.119).
	RCRA:	If discarded in purchased form, this product is a characteristic hazardous waste. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal whether a material containing the product or derived from the product shouldbe classified as a hazardous waste (40 CFR 261.20-24).
	RMP:	Not listed under the Risk Management Plan (40 CFR 68).
	SARA TITLE III:	Section 302 Extremely Hazardous Substances – None (40 CFR 355) Section 311/312 Hazard Categories – None (40 CFR 370.2) Section 313 Toxic Chemicals – None (40 CFR 372.65)
	TSCA:	On TSCA inventory.
US State:		This product is not subject to California Proposition 65. There are no known additional requirements necessary for compliance with state right-to-know regulations.
Canadian:	DSL:	Listed (published 5 April 1994)
EU:	CLP:	Regulation (EC) No. 1272/2008 Classification, Labeling and Packaging does not apply to non-hazardous materials.
	EINECS:	No. 200-655-4
	REACH:	Regulation (EC) No. 1907/2006 Registration, Evaluation, Authorization and Restriction of Chemicals
	Safety Data Sheets:	Regulation (EU) No. 453/2010 does not apply to non-hazardous materials.
It shall be indicated if a chemical safety assessment has been carried out for the substance or the mixture by the supplier.		Not applicable.

16. OTHER INFORMATION

Reason for Issue:	New	Reformatted per EU GHS.
	A	Reformatted per OSHA GHS.
	B	Added section 15.2.
	C	Added 62 % aqueous Choline Chloride (F3060062)
Risk Phrases Used:	None used.	
Hazard Ratings:	The following NFPA hazard ratings are recommended for this product: Fire – 1; Health – 0; Reactivity – 0; Specific Hazard – None	

For safe handling, refer to NFPA 654, *Standard for the prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids.*

THE FOLLOWING ABBREVIATIONS MAY BE USED IN THIS DOCUMENT:

ACGIH	American Council of Governmental Industrial Hygienists
AICS	Australian Inventory of Chemical Substances
CAS	Chemical Abstract Service
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CLP	Classification, Labeling and Packaging
CWA	Clean Water Act
D.O.T.	Department of Transportation
DSL	Domestic Substance List (Canada)
EC_{50}	Effective concentration which induces a response halfway between the baseline and maximum.
EC	European Community
ECL	Existing Chemicals List (Korea)
EINECS	European Inventory of Existing Commercial Substances
EU	European Union
FDA	Food and Drug Administration

FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
GHS	Globally Harmonized System
IBC	International Bulk Chemical Code
IDLH	Immediately Dangerous to Life and Health
K_{St}	Deflagration Index
LC_{50}	Lethal concentration for 50% mortality of subject species
LD_{50}	Lethal dose for 50% mortality of subject species
LD_{LO}	Lethal dose low; the lowest dose of a substance introduced by any route other than inhalation reported to have caused death in humans or animals.
LEL / LFL	Lower Explosive Limit / Lower Flammable Limit
MARPOL	International Convention for the Prevention of Pollution from Ships
MSHA	Mine Safety Health Administration
NFPA	National Fire Protection Association
NIOSH	National Institute of Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
PBT	Persistent Bioaccumulative Toxic
PEL	Permissible Exposure Limit (default 8 hour day, 40 hour week TWA)
PSM	Process Safety Management
RCRA	Resource Conservation and Recovery Act
REACH	Registration, Evaluation, Authorization and Restriction of Chemical Substances
REL	Recommended Exposure Limit (default 10 hour day, 40 hour week TWA)
RMP	Risk Management Plan
SARA	Superfund Amendment and Reauthorization Act
STEL	Short Term Exposure Limit (default 15 minute TWA)
TD_{LO}	Lowest dose to which humans or animals have been exposed and reported to produce a toxic effect other than cancer
TSCA	Toxic Substance Control Act
TWA	Time Weighted Average
UFL	Upper Flammable Limit
USDA	United States Department of Agriculture
vPvB	Very Persistent, Very Bioaccumulative

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.