



**STANDARD MIXING INSTRUCTION SHEET (Rev. 01-Feb-2022)  
TTS SURE BOND 300 / TTS SURE BOND 300 HTHP**

**Pre-Step:**

Open 7-gallon Bucket and take-out the following items from Bucket.

- One Quart Container 16 oz Retarder Jug
- **\*One Quart Container 16 oz HTHP Additive**  
*(\*Only Available for TTS SURE BOND 300 HTHP)*
- One Plastic bag with Dry blend Cement
- One 60 ml Syringe
- One-page instruction sheet

**Mixing Instructions:**

- Pour the Mix Fluid into 7-gallon mixing pail. *(\*Add 16 oz HTHP Additive - For HTHP)*
- If needed, add Liquid Retarder as per Temperature Chart below, using the 60ml syringe provided (Item 3) into the Mix Fluid Stir for 3 minutes until dissolved.
- Add Plastic Bag of Dry Cement Blend (Item 2), slowly until thoroughly mixed.
- Keep stirring for another 5 minutes+.
- Measure Cement Density and record measurement (16.4 ppg +/- 0.2 ppg)

**TTS SURE BOND 300 - RETARDER TABLE**

Temperature (DegF) FOR TTS SURE BOND 300	Retarder Amount (cc) FOR TTS SURE BOND 300
80-175	None
176-180	8
181-185	17
186-190	24
191-195	32
196-199	41
200-205	50
206-210	58
211-215	68
216-220	76
221-225	84
226-230	93
231-235	102
236-240	111
241-245	120
246-250	129
251-255	132
256-260	135
261-265	139
266-270	141
271-275	145
276-280	148
281-285	151
286-290	154
291-295	158
296-310	168



**TTS SURE BOND 300 HTHP - RETARDER TABLE**

<b>Temperature (DegF) FOR TTS SURE BOND 300 HTHP</b>	<b>Retarder Amount (cc) FOR TTS SURE BOND 300 HTHP</b>	<b>HTHP Additive FOR TTS SURE BOND 300 HTHP</b>
311-315	201	<b>ENTIRE BOTTLE (16 OZ)</b>
316-320	214	
321-325	229	
326-330	242	
331-335	254	
336-340	267	
341-345	282	
346-350	295	
351-355	309	
356-360	322	
361-365	330	
366-370	338	
371-375	354	
376-380	370	
381-385	378	
386-390	386	
391-395	394	
396-400	402	

**MAXIMUM OF 4 HOURS TO DUMP OUT OF BAILER**

	<b>TECH UNIT</b>			Approval: RBC
				Date: 02-24-2021
Document #	Rev.	Ver.	Prepared by:	Date:
<b>Cement Placement TU</b>	<b>A</b>	<b>1</b>	<b>Brad Cook</b>	<b>February 24, 2021</b>
Title:	<b>Cement Placement Tech Unit</b>			<b>Page 1 of 3</b>

These procedures are Field Operating Procedures written for use in conducting a cement plugback. If possible, several of the steps are recommended to take place before the actual runs in the well are to begin to better prepare the well and target plugging area for an effective cement plug.

## 1.0 Field Operating Procedure

### Pre-job Well Preparation

1.1 When evaluating candidate wells, collect as much information as is available about the subject well and the field in which it resides. Information on potential adverse conditions may be found by reviewing well history information related to production history, well logs, lab test reports, and general knowledge of field or production zone. A Well Information Sheet (Appendix A) is available for use as a guide for collection of this information.

1.2 If unfavorable conditions for cement cure or bonding exist, take steps to mitigate those conditions/factors before beginning plugback operations. These conditions may be related to the fluids present and/or related to the condition of the casing at the zone of interest. These conditions include, but not limited to, presence of scale, paraffin, asphaltene, gas/condensate, high salinity, or crossflow. Mitigation steps may include spotting of treatment fluid, displacement of existing well fluid at setting depth, cleaning the casing, etc.

If unfavorable conditions are suspected, contact Thru Tubing Systems (TTS) for possible solutions and steps to implement. Ideally, this will take place well in advance of desired commencement date of operations.

1.3 Make a full length (same as dump bailer string) gage run, preferably with a thermometer or other temperature recording device. Record the BHT. Locate and note fluid level if possible. Note any tight spots. Run CCL across plug interval and determine if sufficient markers are present for accurate depth control via CCL. Note the maximum running speed of the gage run.

1.4 Shut-in the well a minimum of 48 hours prior to starting plugback operations. Make sure pressure is stabilized before commencing dump bailer operations.

### Well-site Operations

1.5 Perform an initial inspection of the well when first arriving at the well site. Record wellhead pressure and time. Continue to monitor and record well pressure regularly (each run, but a minimum of daily if no runs are being made) during the plugback/cementing operation.

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Title:	<b>Cement Placement Tech Unit</b>			<b>Page 2 of 3</b>

- 1.6 KEEP THE WELL PRESSURE STATIC UNTIL YOU HAVE COMPLETED THE PLUG BACK PROJECT AND THE CEMENT PLUG IS TESTED.
- 1.7 Equalization of lubricator pressure and wellhead pressure prior to opening valve is required before each run. Pressure up the lubricator to wellhead pressure prior to opening the swab valve. If the well has a full column of liquid to the surface, it also requires bleed-off of pressure increase caused by displacement when going inhole and replacement of the fluid when coming out of the hole.
- 1.8 Make required dump bailer runs to place SureBond 300 Cement volume required. Dump SureBond 300 Cement from as close to top of previous run as possible. Locate the end of the bailer 1 foot above the plug, bottom, or top of cement from the previous run. Activate the dump bailer and pull end of bailer up a few feet to allow full contents of bailer to reside below the end of the bailer. Wait for two minutes for bailer to clear.
- 1.9 Pull off bottom at < 30 fpm. Maintain this speed on all cement bailer runs within 300' of plug. Run speed may be increased above this depth to a safe ascent rate for the well design.
- 1.10 If the fluid at setting depth is gas, dump bail a column of water atop the bridge plug (if it is a sealing bridge plug) or atop the first run of cement if placing cement atop a non-sealing plug. The first cement dump run should not be counted when determining  $\Delta P$  capability of the cement plug.
- 1.11 If opportunity arises where sufficient time has elapsed between cement runs for "initial set" of cement + 2 hours, it is advisable to tag top of cement and check for buildup of cement plug. Refer to chart in cement kit for initial set time at temperature.
- 1.12 Make additional bailer runs with SureBond 300 Cement as required to achieve desired plug height. *Refer to TTS Differential Pressure vs Plug Height chart.*
- 1.13 Wait a minimum of 24 hours after the last dump bailer run before pressure testing the cement plug. This will allow for majority of cement compressive strength to develop. (If positive pressure test is to be run and additional fluid is required, the hydrostatic pressure of the additional fluid must be taken into account when conducting pressure test.)

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Title:	Cement Placement Tech Unit				Page 3 of 3

**APPENDIX A**

<b>Cement Plugback Well Information Sheet</b>											
<b>General Information</b>											
Customer	Phone	Co. Rep	Phone	Co. Rep E-mail	Phone						
Engineer E-mail	Co. Rep E-mail										
Location	Service Company										
Well S/N:	Parish/ County										
Well Name	State/Province										
Field	Country										
Job #	Quote #		AFE/PO/WO #								
<b>Well Details (Attach well schematic if available)</b>											
Casing Size, Wt., & Grade	@ depth	Plug Setting Depth	ID @ Setting Depth								
Tubing Size, Wt. & Grade	@ depth	Min. I.D.	@ depth								
Well Deviation	Max	Fluid Type/Density	Fluid Level								
Any Enhanced Recovery (Gas Lift, ESP, etc).?	@ Setting Depth	BHT	BHP								
		Any Open Perfs?	Open Perf Depths								
<b>Production Information</b>											
Production Type			Scale?								
Flowing or Shut-in?	Date shut-in?	Paraffin?									
Latest Daily Rate(s)?	Is SITP Stable?	Asphaltenes?									
Any Crossflow?	Latest FTP?	High Salinity?									
Any Production Treatment Chemicals Used?			Gas?								
		Oil/Condensate?									
<b>Additional Information</b>											
1 - Are there any well logs (PLT, Caliper, etc.) available?											
2 - Are there any previous job logs that would have information on well conditions for running wireline?											
3 - Are there any known factors for this zone or field that may affect cement job?											
4 - If multiple zones are open, what is production type and percentage attributed to each zone?											
5 - Is the well fluid produced fluid or has the well fluid been changed or altered?											
6 - Are the data points (BHP, BHT) taken from actual measurements, logs, or are they calculated?											
7 - Is the well fluid produced fluid or has the well fluid been changed or altered?											
8 - If scale is present, what type of scale? Has their been any treatment for the scale?											
<b>Well Prep</b>											
1 - Determine if plug/cement zone conditions need to be mitigated. Take necessary steps to improve conditions.											
2 - Make full length and OD gauge run.											
3 - Collect any missing data points (accurate BHT, BHP, fluid level) during gauge run.											
4 - Shut-in well and allow to stabilize for a minimum of 48 hours.											
5 - Insure ability on location to add or remove pressure and/or fluid to or from well as needed during operation.											



# TTS SURE BOND 300™

## CASING SIZE VS MINIMUM CEMENT HEIGHT CHART

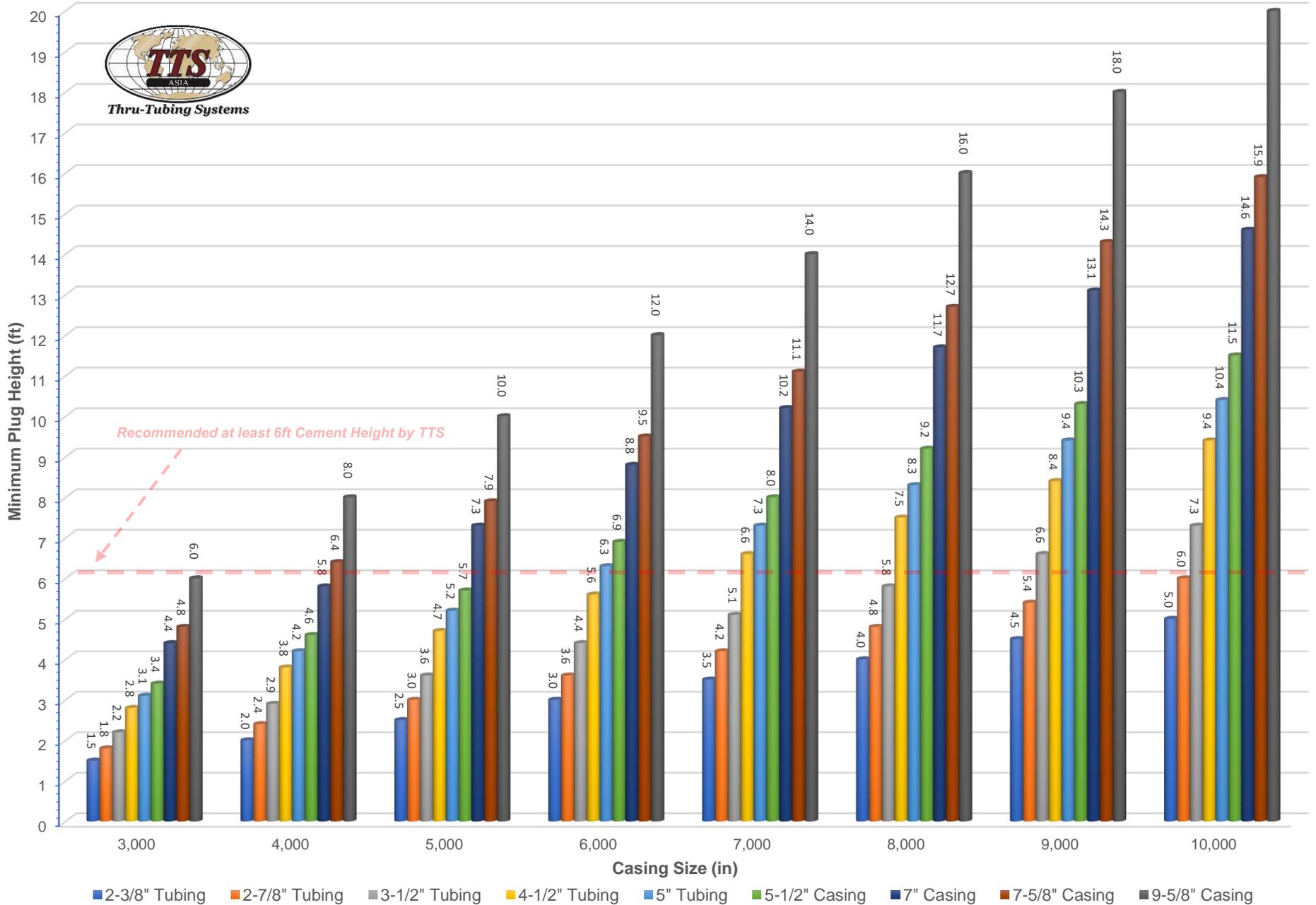
TTS SURE BOND 300™ - STANDARD CEMENT KIT (80°F - 310°F)								
Casing Size (in)	TTS Recommended Minimum Cement Height (ft)							
9-5/8"	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0
7-5/8"	6.0	6.4	7.9	9.5	11.1	12.7	14.3	15.9
7"	6.0	6.0	7.3	8.8	10.2	11.7	13.1	14.6
5-1/2"	6.0	6.0	6.0	6.9	8.0	9.2	10.3	11.5
5"	6.0	6.0	6.0	6.3	7.3	8.3	9.4	10.4
4-1/2"	6.0	6.0	6.0	6.0	6.6	7.5	8.4	9.4
3-1/2"	6.0	6.0	6.0	6.0	6.0	6.0	6.6	7.3
2-7/8"	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
2-3/8"	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Differential Pressure (psi)	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000

TTS SURE BOND 300 HTHP™ - HIGH TEMPERATURE CEMENT KIT (310°F - 360°F)								
Casing Size (in)	TTS Recommended Minimum Cement Height (ft)							
9-5/8"	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.7
7-5/8"	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
7"	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
5-1/2"	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
5"	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
4-1/2"	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
3-1/2"	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
2-7/8"	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
2-3/8"	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Differential Pressure (psi)	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000

TTS SURE BOND 300 HTHP™ - VERY HIGH TEMPERATURE CEMENT KIT (360°F - 400°F)								
Casing Size (in)	TTS Recommended Minimum Cement Height (ft)							
9-5/8"	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
7-5/8"	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
7"	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
5-1/2"	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
5"	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
4-1/2"	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
3-1/2"	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
2-7/8"	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
2-3/8"	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Differential Pressure (psi)	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000

**NOTE: TTS recommends having at least 6ft of cement height for best performance**

# TTS SURE BOND 300™ - Standard Cement Kit (80°F - 310°F)

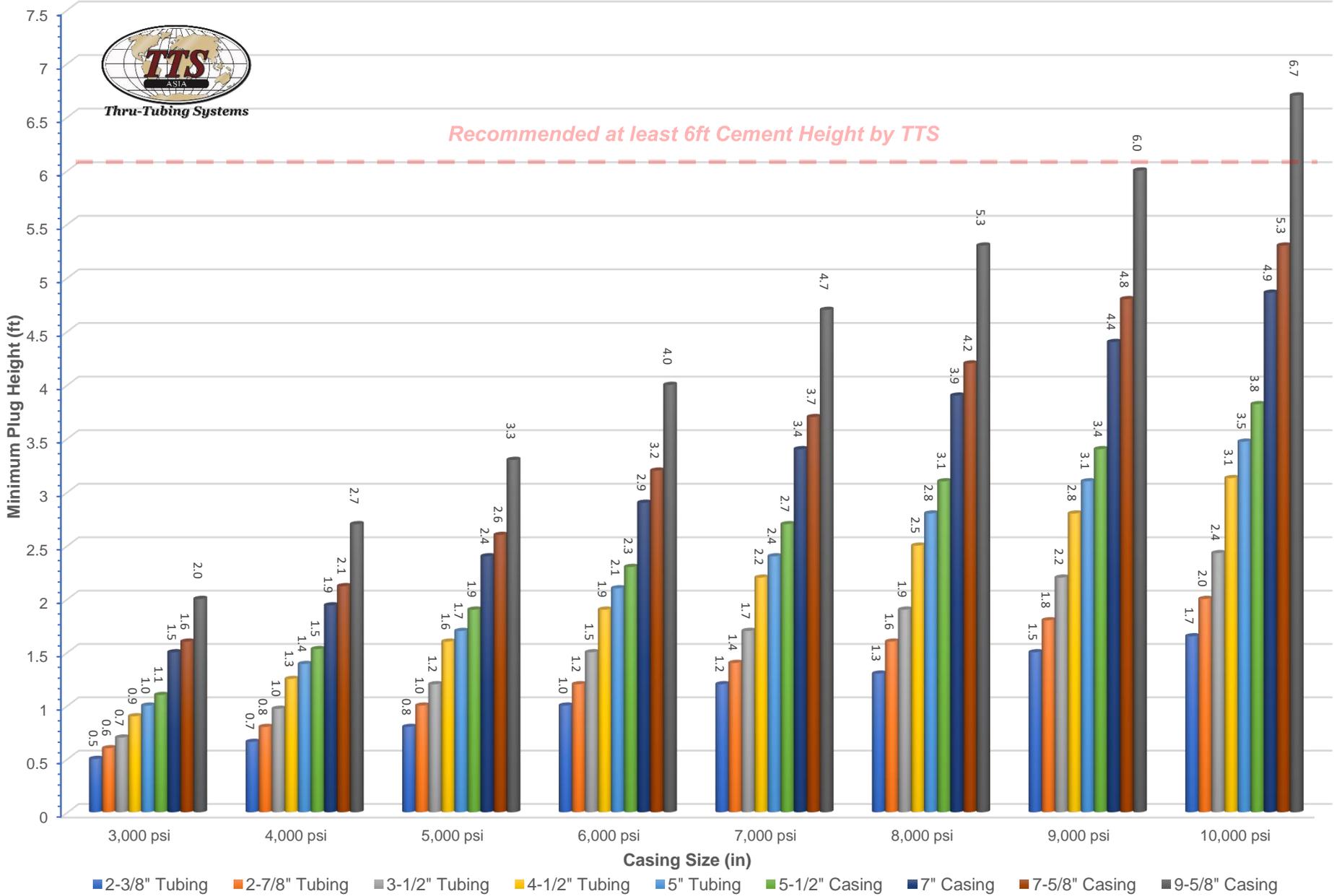


**NOTE : TTS recommends having at least 6ft of cement height for best performance**

# TTS SURE BOND 300 HTHP™ - High Temperature Cement Kit (310°F - 360°F)



*Recommended at least 6ft Cement Height by TTS*

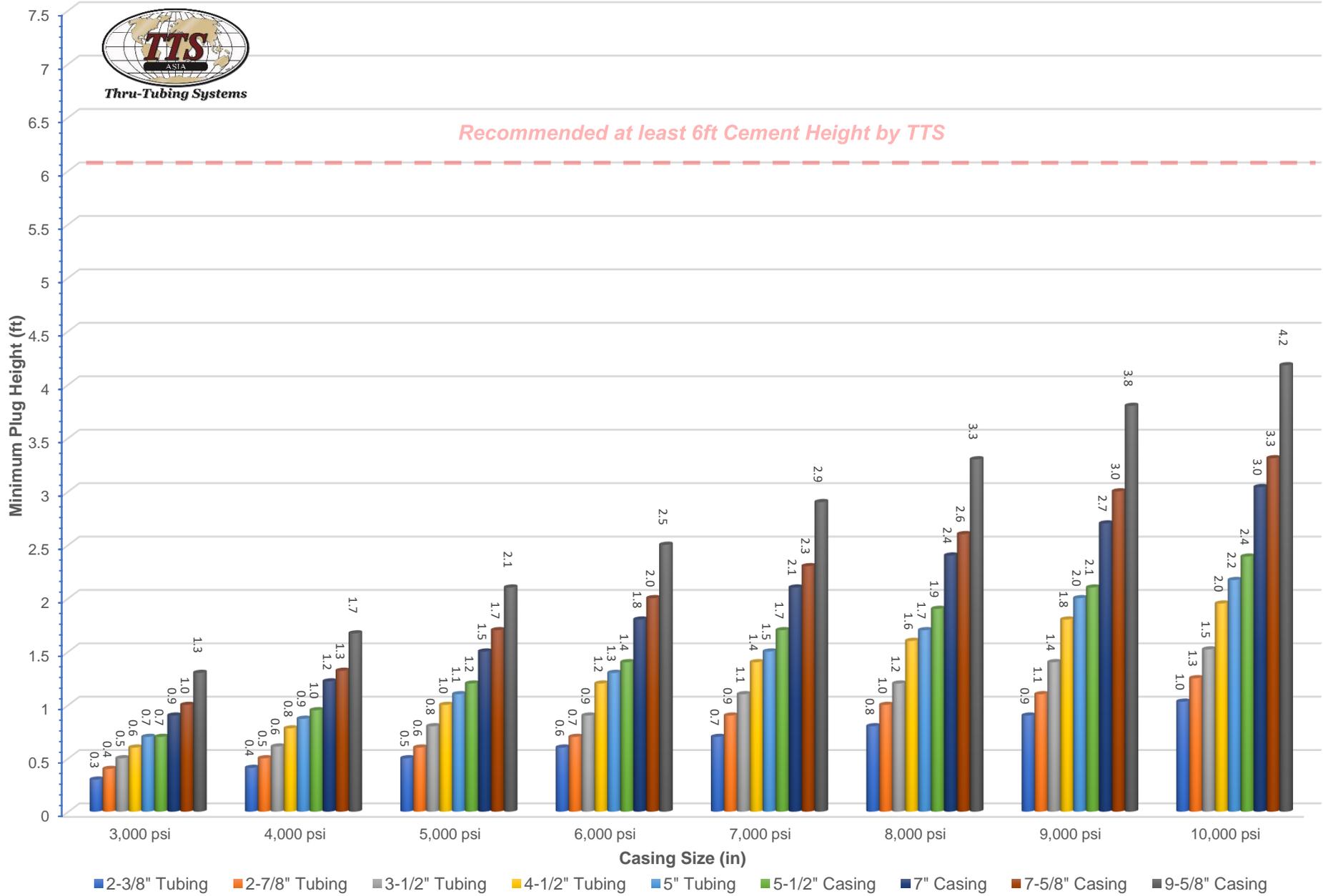


**NOTE : TTS recommends having at least 6ft of cement height for best performance**

# TTS SURE BOND 300 HTHP™ - Very High Temperature Cement Kit (360°F - 400°F)



*Recommended at least 6ft Cement Height by TTS*



**NOTE : TTS recommends having at least 6ft of cement height for best performance**



# THRU TUBING SYSTEMS SAFETY DATA SHEET

<b>Document #</b>	<b>Version</b>	<b>Prepared by:</b>	<b>Issue Date:</b>	<b>November 30, 2020</b>
SDS – SureBond 300	1.1	Brad Cook	<b>Supersedes:</b>	<b>All previous</b>
<b>Cement (Portland/Oilwell)</b>				<b>Page 1 of 13</b>

## SECTION 1: IDENTIFICATION

<b>Product Identifier:</b>	Portland Cement (cement)
<b>Product Name(s):</b>	SureBond 300
<b>Synonyms:</b>	Cement, Portland Cement, Hydraulic Cement, Oil Well Cement, OWH,OW Class H HSR
<b>Recommended Use:</b>	This product is intended to be used as an Oilwell Cement
<b>Manufacturer:</b>	Thru Tubing Systems, Inc 1806B Highway 90 East New Iberia, LA 70560 +1 337-606-0031
<b>Responsible Party and Emergency Contact:</b>	Thru Tubing Systems, Inc. +1 337-606-0031

## SECTION 2: HAZARD(S) IDENTIFICATION

<b>Hazard Classification:</b>	Skin Corrosive 1C    H314
	Eye Damage 1        H318
	Skin Sensitivity 1    H317
	Carcinogen 1A        H350
	STOT SE 3            H335
<b>Label Elements:</b>	
<b>Pictograms</b>	
<b>Signal Word:</b>	Danger
<b>Hazard Statements:</b>	H314 – Causes severe skin burns and eye damage
	H315 – Causes skin irritation
	H317 – May cause an allergic skin reaction
	H318 – Causes serious eye damage
	H335 – May cause respiratory irritation
	H350 – May cause cancer (inhalation)
	H372 – Causes damage to organs through prolonged or repeated exposure
<b>Precautionary Statements:</b>	P201 – Obtain special instructions before use
	P202 – Do not handle until all safety precautions have been read and understood
	P260 – Do not breathe dust
	P264 – Wash hands, forearms, and exposed areas thoroughly after handling
	P271 – Use only outdoors or in a well-ventilated area
	P272 – Contaminated work clothing should not be allowed out of the workplace



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<b>Cement (Portland/Oilwell)</b>				<b>Page 2 of 13</b>

	P280 – Wear protective gloves, protective clothing, face protection, eye protection
	P301+P330+P331 – IF SWALLOWED: rinse mouth. Do NOT induce vomiting
	P303+P361+P353+P352 – IF ON SKIN (or hair): Remove/Take off Immediately all Contaminated clothing. Rinse skin with water/shower. Wash with plenty of soap and water
	P304+P340 – IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing
	P305+P351+P338 – If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
	P310 – Immediately call a POISON CENTER or doctor/physician
	P321 – Specific treatment (see Section 4)
	P333+P313 – If skin irritation or rash occurs: Get medical advice/attention
	P362+364 – Take off contaminated clothing and wash it before reuse
	P403+P233 – Store in a well-ventilated place. Keep container tightly closed
	P405 – Store locked up
	P501 – Dispose of contents/container according to local, regional, state, national, territorial, provincial, and international regulations
<b>Other Hazards:</b>	
<b>Other Hazards not Contributing to the Classification:</b>	Inhalation can cause serious, potentially irreversible lung/respiratory tract tissue damage due to chemical (caustic) burns, including third degree burns. Individuals with lung disease (e.g. bronchitis, emphysema, COPD, pulmonary disease) or sensitivity to hexavealent chromium can be aggravated by exposure
<b>Unknown Acute Toxicity</b>	Not Available

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<u>Mixture</u>			
Name	Product Identifier	%(w/w)	Classification (GHS-US)
Cement, Portland, chemicals	CAS# 65997-15-1	58-70	Skin Irritant 2, H315 Eye Damage 1, H318 Skin Sensitivity 1, H317 STOT SE 3, H335
Crystalline Silica (quartz)	CAS# 14808-60-7	28-35	Carc. 1A, H350 STOT SE 3, H335 STOT RE 1, H372
Gypsum, Calcium Sulfate, Ferric Oxide	CAS# 13397-24-5	<5	Not Classified
Magnesium Oxide	CAS# 1309-48-4	<5	Not Classified
Calcium Oxide	CAS# 1305-78-8	<3	Skin Corr. 1C, H314 Eye Dam. 1, H318 STOT SE 3, H335

The specific percentage concentration of the mixture is withheld because it is a proprietary trade secret.



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<b>Cement (Portland/Oilwell)</b>				<b>Page 3 of 13</b>

## SECTION 4: FIRST AID MEASURES

### Description of First Aid Measures

<b>General:</b>	Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show label if possible).
<b>Inhalation:</b>	When symptoms occur: go into open air and ventilate suspected area. Keep at rest and in a position comfortable for breathing. If you feel unwell, see medical advice.
<b>Skin Contact:</b>	Remove contaminated clothing. Immediately flush skin with plenty of water for at least 60 minutes. Immediately call POISON CENTER or doctor/physician.
<b>Eye Contact:</b>	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing for at least 60 minutes. Immediately call POISON CENTER or doctor/physician.
<b>Ingestion:</b>	Rinse mouth. Do not induce vomiting. Immediately call POISON CENTER or doctor/physician.

### Most Important Symptoms and Effects Both Acute and Delayed

<b>General:</b>	Corrosive to eyes, respiratory system and skin. Exposure may produce an allergic reaction.
<b>Inhalation:</b>	The three types of silicosis include: 1) Simple chronic silicosis – which results from long-term exposure (more than 20 years) to low amounts of respirable crystalline silica. Nodules of chronic inflammation and scarring provoked by the respirable crystalline silica form in the lungs and chest lymph nodes. This disease may feature breathlessness and may resemble chronic obstructive pulmonary disease (COPD); 2) Accelerated silicosis – occurs after exposure to larger amounts of respirable crystalline silica over a shorter period of time (5-15 years); 3) Acute silicosis – results from short-term exposure to very large amounts of respirable crystalline silica. The lungs become very inflamed and may fill with fluid, causing severe shortness of breath and low blood oxygen levels. Inflammation, scarring, and symptoms progress faster in accelerated silicosis than in simple silicosis. Progressive massive fibrosis may occur in simple or accelerated silicosis, but is more common in the accelerated form. Progressive massive fibrosis results from severe scarring and leads to the destruction of normal lung structures. Some studies show that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis may be associated with the increased incidence of several autoimmune disorders such as scleroderma (thickening of the skin), systemic lupus erythematosus, rheumatoid arthritis, and diseases affecting the kidneys. Silicosis increases the risk of tuberculosis. Some studies show an increased incidence of chronic kidney disease and end-stage renal disease in workers exposed to respirable crystalline silica. Corrosive to the respiratory tract.
<b>Skin Contact:</b>	Cement may cause dry skin, discomfort, irritation, severe burns, and dermatitis. Exposure to sufficient duration to wet cement, or to dry cement on moist areas of the body, can cause serious potentially irreversible damage to skin, eye, respiratory, and digestive tracts due to chemical (caustic) burns, including third degree burns. A skin exposure may be hazardous even if there is no pain or discomfort. Cement is capable of



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<b>Cement (Portland/Oilwell)</b>				<b>Page 4 of 13</b>

	causing dermatitis by irrigation and allergy. Skin affected by dermatitis may include symptoms such as; redness, itching, rash, scaling, and cracking. Irritant dermatitis is caused by the physical properties of cement including alkalinity and abrasion. Allergic contact dermatitis is caused by sensitization to hexavalent chromium (chromate) present in cement. The reaction can range from a mild rash to severe skin ulcers. Persons already sensitized may react to the first contact with cement. Others may develop allergic dermatitis after years of repeated contact with cement.
<b>Eye Contact:</b>	Airborne dust may cause immediate or delayed irritation or inflammation. Eye contact with large amounts of dry powder or with wet cement can cause moderate eye irritation, chemical burns, and blindness. Eye exposures require immediate first aid and medical attention to prevent significant damage to the eye.
<b>Ingestion:</b>	May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.
<b>Chronic Symptoms:</b>	If dust is generated, repeated exposure through inhalation may cause cancer or lung disease.
<b>Indication of Any Immediate Medical Attention and Special Treatment Needed</b>	
If exposed or concerned, get medical advice and attention.	

SECTION 5: FIRE-FIGHTING MEASURES	
<b>Extinguishing Media</b>	
<b>Suitable Extinguishing Media:</b>	Use extinguishing Media appropriate for surrounding fire.
<b>Unsuitable Extinguishing Media:</b>	Do not use a heavy water stream. Use of heavy stream of water may spread fire.
<b>Special Hazards Arising From the Substance or Mixture</b>	
<b>Fire Hazard</b>	Not flammable.
<b>Explosion Hazard:</b>	Product is not explosive.
<b>Reactivity:</b>	Wet cement is alkaline and is incompatible with acids, ammonium salts, and aluminum metal. Cement dissolves in hydrofluoric acid, producing corrosive tetrafluoride gas. Cement reacts with water to form silicates and calcium hydroxide. Silicates react with powerful oxidizers such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride.
<b>Advice for Firefighters</b>	
<b>Precautionary Measures Fire:</b>	Exercise caution when fighting any chemical fire.
<b>Firefighting Instructions:</b>	Do not get water inside containers. Do not apply water stream directly at source of leak.
<b>Protection During Firefighting:</b>	Do not enter fire area without proper protective equipment, including respiratory protection.



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<b>Cement (Portland/Oilwell)</b>				<b>Page 5 of 13</b>

<b>Hazardous</b>	None.
<b>Combustion Products:</b>	
<u><b>Reference to Other Sections</b></u>	
Refer to Section 9 for flammability properties.	

SECTION 6: ACCIDENTAL RELEASE MEASURES	
<u><b>Personal Precautions, Protective Equipment and Emergency Procedures</b></u>	
<b>General Measures:</b>	Do not breathe dust. Do not get in eyes, on skin, or on clothing.
<u><b>For Non-Emergency Personnel</b></u>	
<b>Protective Equipment:</b>	Use appropriate personal protection equipment (PPE)
<b>Emergency Procedures:</b>	Evacuate unnecessary personnel.
<u><b>For Emergency Personnel</b></u>	
<b>Protective Equipment:</b>	Equip cleanup crew with proper protection.
<b>Emergency Procedures:</b>	Ventilate area.
<u><b>Environmental Precautions</b></u>	
	Prevent entry to sewers and public waters
<u><b>Methods and Material for Containment and Cleaning Up</b></u>	
<b>For Containment:</b>	Place spilled material into a container. Avoid actions that cause the cement to become airborne. Avoid inhalation of e and contact with skin. Wear appropriate protective equipment as described in Section 8. Scrape wet cement and place in container. Allow material to dry or solidify before disposal. Do not wash cement down sewage and drainage systems or into bodies of water (e.g. streams).
<b>Methods for Cleaning Up:</b>	Avoid actions that cause dust to become airborne during clean-up such as sweeping or using compressed air. Use HEPA vacuum or thoroughly wet with water to clean up dust. Use PPE described in Section 8.
<u><b>Reference to Other Sections</b></u>	
See Section 8, Exposure Controls and Personal Protection. Concerning disposal elimination after cleaning, see Section 13.	

SECTION 7: HANDLING AND STORAGE	
<u><b>Precautions for Safe Handling</b></u>	
<b>Additional Hazards When Processed:</b>	Keep totes and bagged cement dry until used. Stack totes and/or bagged material in a secure manner to prevent falling. Packaged cement is heavy and poses risks such as sprains to the back, arms, shoulders, and legs during lifting and mixing. Handle with care and use appropriate control measures. Cutting, crushing, or grinding hardened cement will release respirable crystalline silica. Use all appropriate measures of dust control or suppression, and Personal Protective Equipment (PPE) described in Section 8 below.



# THRU TUBING SYSTEMS SAFETY DATA SHEET

<b>Document #</b>	<b>Version</b>	<b>Prepared by:</b>	<b>Issue Date:</b>	<b>November 30, 2020</b>
SDS – SureBond 300	1.1	Brad Cook	<b>Supersedes:</b>	<b>All previous</b>
<b>Cement (Portland/Oilwell)</b>				<b>Page 6 of 13</b>

<b>Hygiene Measures:</b>	Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking, and again when leaving work. Wash contaminated clothing before reuse.
<b>Conditions for Safe Storage, Including Any Incompatibilities</b>	
<b>Storage Conditions:</b>	Store in a dry, cool, and well-ventilated place. Keep containers closed when not in use.
<b>Incompatible Materials:</b>	Wet cement is alkaline and is incompatible with acids, ammonium salts, and aluminum metal. Cement dissolves in hydrofluoric acid, producing corrosive silicon tetrafluoride gas. Cement reacts with water to form silicates and calcium hydroxide. Silicates react with powerful oxidizers such as fluorine, boron, trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride.
<b>Storage Temperature:</b>	Unlimited.
<b>Specific End Use(s)</b>	
This product is intended to be used as an oilwell cement.	

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION			
EXPOSURE GUIDELINES			
Component	OSHA PEL	ACGIH TLV	NIOSH REL
Cement, Portland	(TWA) 5 mg/m <sup>3</sup>	(TWA) 1 mg/m <sup>3</sup>	(TWA) 5 mg/m <sup>3</sup>
Crystalline Silica, Quartz	10 mg/m <sup>3</sup> %SiO <sub>2</sub> + 2 TWA	(TWA) 0.025 mg/m <sup>3</sup>	(TWA) 0.05 mg/m <sup>3</sup>
Gypsum, Calcium Sulfate, Ferric Oxide	(TWA) 5 mg/m <sup>3</sup>	(TWA) 10 mg/m <sup>3</sup>	(TWA) 5 mg/m <sup>3</sup>
Calcium Oxide	(TWA) 5 mg/m <sup>3</sup>	(TWA) 2 mg/m <sup>3</sup>	(TWA) 2 mg/m <sup>3</sup>
Magnesium Oxide	(TWA) 15 mg/m <sup>3</sup>	(TWA) 10 mg/m <sup>3</sup>	
<b>EXPOSURE CONTROLS</b>			
<b>Appropriate Engineering Controls.</b> Use adequate general or local exhaust ventilation to maintain concentrations in the workplace below the applicable exposure limits listed above. Emergency eye wash stations should be available in the immediate vicinity or any potential exposure.			
<b>Personal Protective Equipment.</b> Gloves. Protective goggles. Dust Mask.			
<b>Materials for Protective Clothing.</b> Chemically resistant materials and fabrics.			
<b>Hand Protection.</b> Wear gloves impervious to water to prevent skin contact.			
<b>Eye Protection.</b> Wear ANSI approved glasses or safety goggles when handling dust. Wearing contact lenses is not recommended.			
<b>Skin and Body Protection.</b> Wear gloves, boot covers, and protective clothing impervious to water to prevent skin contact.			
<b>Respiratory Protection.</b> Wear a NIOSH approved respirator that is properly fitted and is in good condition when exposed to dust over exposure limits.			
<b>Other Information.</b> Do not eat, drink, or smoke when using.			

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES	
Information on Basic Physical and Chemical Properties	
Appearance:	Gray, White, or Off-white powder



# THRU TUBING SYSTEMS SAFETY DATA SHEET

<b>Document #</b>	<b>Version</b>	<b>Prepared by:</b>	<b>Issue Date:</b>	<b>November 30, 2020</b>
SDS – SureBond 300	1.1	Brad Cook	<b>Supersedes:</b>	<b>All previous</b>
<b>Cement (Portland/Oilwell)</b>				<b>Page 7 of 13</b>

Odor:	Odorless
Odor Threshold:	Not Available
pH:	12-13 in water
Melting Point/Freezing Point:	Not Available
Initial Boiling Point/Range:	>1000° C (>1832° F)
Flash Point:	Not Available
Evaporation Rate:	Not Available
Flammability (solid/gas):	Not Available
Upper/Lower Flammability Limits:	Not Available
Vapor Pressure:	Not Available
Vapor Density:	Not Available
Relative Density:	2.97
Solubility:	Water: 0.1 -1% (slightly soluble)
Partition Coefficient: n-octonal/water:	Not Available
Auto-Ignition Temperature:	Not Determined
Decomposition Temperature:	Not Determined
Viscosity:	Not Available

## SECTION 10: STABILITY AND REACTIVITY

Reactivity:	Wet cement is alkaline and is incompatible with acids, ammonium salts, and aluminum metal. Cement dissolves in hydrofluoric acid, producing corrosive silicon tetrafluoride gas. Cement reacts with water to form silicates and calcium hydroxide. Silicates react with powerful oxidizers such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride.
Chemical Stability:	Stable under recommended handling and storage conditions (see Section 7)
Possibility of Hazardous Reactions:	Contact with powerful oxidizing agents, such as fluorine, chlorine trifluoride and oxygen difluoride, may cause fires.
Hazardous Decomposition:	Silica will dissolve in hydrofluoric acid and produce a corrosive gas, silicon tetrafluoride. Adding water results in hydration and produces (caustic) calcium hydroxide.
Hazardous Polymerization:	Will not occur
Conditions to Avoid:	Extremely high or low temperatures. Incompatible materials. Avoid generation of dust in handling and use.
Incompatible Materials:	Acids. Ammonium Salts. Aluminum. Hydrofluoric acid. Water. Oxidizers such as fluorine, chlorine trifluoride, oxygen difluoride.

## SECTION 11: TOXICOLOGICAL INFORMATION

<u>Acute Effects of Exposure:</u>	
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# THRU TUBING SYSTEMS SAFETY DATA SHEET

<b>Document #</b>	<b>Version</b>	<b>Prepared by:</b>	<b>Issue Date:</b>	<b>November 30, 2020</b>
SDS – SureBond 300	1.1	Brad Cook	<b>Supersedes:</b>	<b>All previous</b>
<b>Cement (Portland/Oilwell)</b>				<b>Page 8 of 13</b>

Inhalation:	Inhalation of dust may cause respiratory tract irritation. Symptoms of exposure may include cough, sore throat, nasal congestion, sneezing, wheezing, and shortness of breath.
Ingestion:	Ingestion is an unlikely route of exposure. If dust is swallowed, it may irritate the mouth and throat.
Skin contact:	May cause an allergic skin reaction.
Eye Contact:	Causes serious eye damage.
<u>Chronic Effects of Exposure:</u>	Prolonged inhalation of respirable crystalline silica may cause lung disease, silicosis, lung cancer, and other effects.
Numerical Measures of Toxicity of Ingredients:	Portland Cement: OSHA PEL (TWA) 5 mg/m <sup>3</sup> . NIOSH REL (TWA) 5 mg/m <sup>3</sup> . IDLH 5000 mg/m <sup>3</sup>
	Crystalline Silica (quartz): OSHA PEL (TWA) 5 mg/m <sup>3</sup> . NIOSH REL (TWA) 5 mg/m <sup>3</sup> . IDLH 5000 mg/m <sup>3</sup> . LD50 Oral Rat > 5000mg/kg
	Calcium Oxide: OSHA PEL (TWA) 5 mg/m <sup>3</sup> . NIOSH REL (TWA) 2 mg/m <sup>3</sup> . IDLH 25 mg/m <sup>3</sup>
	Gypsum: OSHA PEL (TWA) 15 mg/m <sup>3</sup> (Total) 5 mg/m <sup>3</sup> (Resp). NIOSH REL (TWA) 10 mg/m <sup>3</sup> (Total) 5 mg/m <sup>3</sup> (Resp).
	Magnesium Oxide: OSHA PEL (TWA) 15 mg/m <sup>3</sup> . IDLH 750 mg/m <sup>3</sup>
Symptoms/Injuries After Inhalation:	<p>The three types of silicosis include: 1) Simple chronic silicosis – which results from long-term exposure (more than 20 years) to low amounts of respirable crystalline silica. Nodules of chronic inflammation and scarring provoked by the respirable crystalline silica form in the lungs and chest lymph nodes. This disease may feature breathlessness and may resemble chronic obstructive pulmonary disease (COPD); 2) Accelerated silicosis – occurs after exposure to larger amounts of respirable crystalline silica over a shorter period of time (5-15 years); 3) Acute silicosis – results from short-term exposure to very large amounts of respirable crystalline silica. The lungs become very inflamed and may fill with fluid, causing severe shortness of breath and low blood oxygen levels. Inflammation, scarring, and symptoms progress faster in accelerated silicosis than in simple silicosis. Progressive massive fibrosis may occur in simple or accelerated silicosis, but is more common in the accelerated form. Progressive massive fibrosis results from severe scarring and leads to the destruction of normal lung structures. Some studies show that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis may be associated with the increased incidence of several autoimmune disorders such as scleroderma (thickening of the skin), systemic lupus erythematosus, rheumatoid arthritis, and diseases affecting the kidneys. Silicosis increases the risk of tuberculosis. Some studies show an increased incidence of chronic kidney disease and end-stage renal disease in workers exposed to respirable crystalline silica. Corrosive to the respiratory tract.</p>



# THRU TUBING SYSTEMS SAFETY DATA SHEET

<b>Document #</b>	<b>Version</b>	<b>Prepared by:</b>	<b>Issue Date:</b>	<b>November 30, 2020</b>
SDS – SureBond 300	1.1	Brad Cook	<b>Supersedes:</b>	<b>All previous</b>
<b>Cement (Portland/Oilwell)</b>				<b>Page 9 of 13</b>

Symptoms/Injuries After Skin Contact:	Cement may cause dry skin, discomfort, irritation, severe burns, and dermatitis. Exposure to sufficient duration to wet cement, or to dry cement on moist areas of the body, can cause serious potentially irreversible damage to skin, eye, respiratory, and digestive tracts due to chemical (caustic) burns, including third degree burns. A skin exposure may be hazardous even if there is no pain or discomfort. Cement is capable of causing dermatitis by irrigation and allergy. Skin affected by dermatitis may include symptoms such as; redness, itching, rash, scaling, and cracking. Irritant dermatitis is caused by the physical properties of cement including alkalinity and abrasion. Allergic contact dermatitis is caused by sensitization to hexavalent chromium (chromate) present in cement. The reaction can range from a mild rash to severe skin ulcers. Persons already sensitized may react to the first contact with cement. Others may develop allergic dermatitis after years of repeated contact with cement.
Symptoms/Injuries After Eye Contact:	Airborne dust may cause immediate or delayed irritation or inflammation. Eye contact with large amounts of dry powder or with wet cement can cause moderate eye irritation, chemical burns, and blindness. Eye exposures require immediate first aid and medical attention to prevent significant damage to the eye.
Symptoms/Injuries After Ingestion	May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.
Chronic Symptoms:	If dust is generated, repeated exposure through inhalation may cause cancer or lung disease.
<u>Information on Carcinogenicity of Ingredients:</u>	
	Portland Cement: TLV-A4
	Crystalline Silica: IARC Group 1
	Calcium Oxide:
	Gypsum:
	Magnesium Oxide: TLV-A4

SECTION 12: ECOLOGICAL INFORMATION	
<u>Toxicity:</u>	Not Classified. No recognized unusual toxicity to plants or animals.
Calcium Oxide (1305-78-8) :	LC50 Fish: 1070 mg/l (Exposure time: 96 h – Species: Cyprinus carpio [static])
<u>Persistence and Degradability:</u>	
	Crystalline Silica is not degradable.
<u>Bioaccumulation Potential:</u>	
	Crystalline Silica is not bioaccumulative.
Calcium Oxide (1305-78-8) :	BCF fish 1 (no bioaccumulation).
<u>Mobility in Soil:</u>	Crystalline Silica is not mobile in soil.
<u>Other Adverse Effects:</u>	No data available.



# THRU TUBING SYSTEMS SAFETY DATA SHEET

<b>Document #</b>	<b>Version</b>	<b>Prepared by:</b>	<b>Issue Date:</b>	<b>November 30, 2020</b>
SDS – SureBond 300	1.1	Brad Cook	<b>Supersedes:</b>	<b>All previous</b>
<b>Cement (Portland/Oilwell)</b>				<b>Page 10 of 13</b>

### SECTION 13: DISPOSAL CONSIDERATIONS

<u>Waste Disposal Recommendations:</u>	Dispose of waste material in accordance with all local, regional, state, national, provincial, territorial and international regulations.
<u>Additional Information:</u>	If discarded in its purchased form, this product would not be a hazardous waste either by listing or characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing or derived from the product should be classified as a hazardous waste.

### SECTION 14: TRANSPORT INFORMATION

<u>UN Number:</u>	None
<u>UN Proper Shipping Name:</u>	Not regulated
<u>Transport Hazard Class(es):</u>	None
<u>Packing Group, if applicable:</u>	None
<u>Environmental hazards:</u>	None
	Not regulated for transport by DOT, IMDG, IATA, TDG

### SECTION 15: REGULATORY INFORMATION

<b><u>US Federal Regulations</u></b>	
<u>USDOL-OSHA Hazard Communication Rule 29CFR 1900.1200</u>	Portland cement is considered a “hazardous chemical” under this regulation, and should be part of any hazard communication program.
<u>CERCLA/Superfund 40 CFR 117 and 302(v)</u>	Not classified as a hazardous substance under regulations of this Act.
<u>Hazard Category under SARA (Title III) Section 311 and 312</u>	Portland cement qualifies as a “hazardous substance” with immediate (acute) and delayed (chronic) health effects
<u>Status Under SARA (Title III) Section 313</u>	Not subject to reporting requirements under Section 313.
<u>Status under TSCA</u>	Portland Cement (65997-15-1), Quartz (14808-60-7), Calcium Oxide (1305-78-8), Magnesium Oxide (1309-48-4) are listed on United States TSCA (Toxic Substances Control Act) inventory
<u>Status under the Federal Hazardous Substances Act</u>	Portland cement is a “hazardous substance” subject to statutes promulgated under the subject act.
<b><u>US State Regulations</u></b>	
<u>California Prop 65</u>	WARNING: This product contains chemicals known to the State of California to cause cancer.
<u>California Inhalation Reference Exposure Level (REL)</u>	California established a chronic non-cancer effect REL of 3µg for silica (crystalline, respirable). A chronic REL is an airborne level of a substance at or below which no non-cancer health effects are anticipated in individuals indefinitely exposed to the substance at the level.



# THRU TUBING SYSTEMS SAFETY DATA SHEET

<b>Document #</b>	<b>Version</b>	<b>Prepared by:</b>	<b>Issue Date:</b>	<b>November 30, 2020</b>
SDS – SureBond 300	1.1	Brad Cook	Supersedes:	All previous
<b>Cement (Portland/Oilwell)</b>				<b>Page 11 of 13</b>

<u>Massachusetts</u>	Portland Cement (65997-15-1), Quartz (14808-60-7), Calcium Oxide (1305-78-8), Magnesium Oxide (1309-48-4) and Gypsum (13397-24-5) are listed on Right to Know List
<u>Pennsylvania</u>	Portland Cement (65997-15-1), Quartz (14808-60-7), Calcium Oxide (1305-78-8), Magnesium Oxide (1309-48-4) and Gypsum (13397-24-5) are listed on RTK (Right to Know) List
<u>New Jersey</u>	Portland Cement (65997-15-1), Quartz (14808-60-7), Calcium Oxide (1305-78-8), Magnesium Oxide (1309-48-4) and Gypsum (13397-24-5) are listed on Right to Know Hazardous Substance List
<b>CANADA Regulations</b>	
<b>CANADA Regulations</b>	WHMIS Classification
<u>Cement, Portland (65997-15-1)</u>	Listed on Canadian DSL Inventory. Listed on the Canadian Ingredient Disclosure List. E – Corrosive Material
<u>Silica, Quartz (14808-60-7)</u>	Listed on Canadian DSL Inventory. D2A – Very toxic material causing other toxic effects.
<u>Calcium Oxide (1305-78-8)</u>	Listed on Canadian DSL Inventory. Listed on the Canadian Ingredient Disclosure List. E – Corrosive Material
<u>Magnesium Oxide (1309-48-4)</u>	Listed on Canadian DSL Inventory. Listed on the Canadian Ingredient Disclosure List. Uncontrolled product according to WHMIS classification criteria.

SECTION 16: OTHER INFORMATION	
Date of Preparation:	May 10, 2016
Prepared By:	Thru Tubing Systems, Inc. 1806B Highway 90 East New Iberia, LA 70560 +1 (337) 606-0031
GHS Full Text Phrases:	
Carc. 1A	Carcinogenicity Category 1A
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Skin Corr. 1C	Skin corrosion/irritation Category 1C
Skin Irrit. 2	Skin corrosion/irritation Category 2
Skin Sens. 1	Skin sensitization Category 1
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H314	Causes severe burns and eye damage
H315	Causes skin irritation
H317	May cause allergic skin reaction
H318	Causes serious eye damage
H335	May cause respiratory irritation



# THRU TUBING SYSTEMS SAFETY DATA SHEET

<b>Document #</b>	<b>Version</b>	<b>Prepared by:</b>	<b>Issue Date:</b>	<b>November 30, 2020</b>
SDS – SureBond 300	1.1	Brad Cook	<b>Supersedes:</b>	<b>All previous</b>
<b>Cement (Portland/Oilwell)</b>				<b>Page 12 of 13</b>

	H350	May cause cancer (Inhalation)
	H372	Causes damage to organs through prolonged or repeated exposure
	P201	Obtain special instructions before use
	P202	Do not handle until all safety precautions have been read and understood.
	P260	Do not breathe dust.
	P264	Wash hands, forearms, and exposed areas thoroughly after handling.
	P271	Use only outdoors or in a well-ventilated area.
	P272	Contaminated work clothing should not be allowed out of workplace.
	P280	Wear protective gloves, protective clothing, face protection, eye protection.
	P301+P330+P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
	P303+P361+P353+P352	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash with plenty of soap and water
	P304+P340	IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing.
	P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P310	Immediately call a POISON CENTER or doctor/physician.
	P321	Specific treatment (see Section 4).
	P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
	P362+P364	Take off contaminated clothing and wash it before reuse.
	P403+P233	Store in a well-ventilated place. Keep container tightly closed.
	P405	Store locked up.
	P501	Dispose of contents/container according to local, regional, state, national, territorial, provincial, and international regulations.

**Other Important Information:**

Portland cement should only be used by knowledgeable persons. Inexperienced product users must obtain proper training before using this product. A key to using the product safely requires the user to recognize the Portland cement chemically reacts with water, and that some of the intermediate products of this reaction (that is, those present while a Portland cement product is “setting”) pose a far more severe hazard than does Portland cement itself. While the information provided in this Safety Data Sheet is believed to provide a useful summary of the hazards of Portland cement as it is commonly used, the sheet cannot, and does not, anticipate and provide all of the information that might be needed in every situation. In particular, the data furnished in this sheet does not address hazards that may be posed by other materials mixed with Portland cement products. Users therefore, should review other applicable material safety data sheets before working with this Portland cement or working on Portland cement or working Portland cement products, for example, Portland cement concrete.

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# THRU TUBING SYSTEMS SAFETY DATA SHEET

<b>Document #</b>	<b>Version</b>	<b>Prepared by:</b>	<b>Issue Date:</b>	<b>November 30, 2020</b>
<b>SDS – SureBond 300</b>	<b>1.1</b>	<b>Brad Cook</b>	<b>Supersedes:</b>	<b>All previous</b>
<b>Cement (Portland/Oilwell)</b>				<b>Page 13 of 13</b>

AND UNDERSTAND OTHER PERTINENT SOURCES OF INFORMATION, TO COMPLY WITH ALL LAWS AND PROCEDURES APPLICABLE TO THE SAFE HANDLING AND USE OF PRODUCT, AND TO DETERMINE THE SUITABILITY OF THE PRODUCT FOR ITS INTENDED USE. BUYER'S EXCLUSIVE REMEDY SHALL BE FOR DAMAGES AND NO CLAIM OF ANY KIND, WHETHER AS TO PRODUCT DELIVERED OR FOR NON-DELIVERY OF PRODUCT, AND WHETHER BASED ON CONTRACT, BREACH OF WARRANTY, NEGLIGENCE, OR OTHERWISE SHALL BE GREATER IN AMOUNT THAN THE PURCHASE PRICE OF THE QUANTITY OF PRODUCT IN RESPECT OF WHICH DAMAGES ARE CLAIMED. IN NO EVENT SHALL TTS BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, WHETHER BUYER'S CLAIM IS BASED ON CONTRACT, BREACH OF WARRANTY, NEGLIGENCE, OR OTHERWISE.



# THRU TUBING SYSTEMS SAFETY DATA SHEET

<b>Document #</b>	<b>Version</b>	<b>Prepared by:</b>	<b>Issue Date:</b>	November 30, 2020
SDS – Chemical Mix Fluid	1.1	Brad Cook	Supersedes:	All previous
<b>Chemical Mix Fluid</b>				<b>Page 1 of 7</b>

## SECTION 1: IDENTIFICATION

<b>Product Identifier:</b>	Chemical Mix Fluid
<b>Product Name(s):</b>	Chemical Mix Fluid
<b>Synonyms:</b>	Mix Fluid, Mix Water, Fluid Additive
<b>Recommended Use:</b>	This product is intended to be used as an Oilwell Cement
<b>Manufacturer:</b>	Thru Tubing Systems, Inc 1806B Highway 90 East New Iberia, LA 70560 +1 337-606-0031
<b>Responsible Party and Emergency Contact:</b>	Thru Tubing Systems, Inc. +1 337-606-0031

## SECTION 2: HAZARD(S) IDENTIFICATION

<b>Hazard Classification:</b>	Not Classified
<b>Label Elements:</b>	
<b>Pictograms</b>	Health 1 Flammability 1 Physical hazard 0 PPE B
<b>Signal Word:</b>	None
<b>Hazard Statements:</b>	This product is not classified as hazardous therefore no (H) hazard statement assigned
<b>Precautionary Statements:</b>	This product is not classified as hazardous therefore no (P) precautionary statement assigned
<b>Other Hazards:</b>	
<b>Other Hazards not Contributing to the Classification:</b>	Not Known
<b>Unknown Acute Toxicity</b>	Not Applicable

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<u>Mixture</u>			
	Name	Product Identifier	Classification (GHS-US)
	Water	70-80	Not Classified
	Sodium Chloride	20-30	Not Classified
	Dispersant	<5	Not Classified



# THRU TUBING SYSTEMS SAFETY DATA SHEET

<b>Document #</b>	<b>Version</b>	<b>Prepared by:</b>	<b>Issue Date:</b>	November 30, 2020
SDS – Chemical Mix Fluid	1.1	Brad Cook	<b>Supersedes:</b>	All previous
<b>Chemical Mix Fluid</b>				<b>Page 2 of 7</b>

The specific percentage concentration of the mixture is withheld because it is a proprietary trade secret.

SECTION 4: FIRST AID MEASURES	
<b>Description of First Aid Measures</b>	
<b>General:</b>	If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible. The severity of the symptoms described will vary dependent of the concentration and the length of exposure.
<b>Inhalation:</b>	When symptoms occur: go into open air and ventilate suspected area. Keep at rest and in a position comfortable for breathing. If you feel unwell, see medical advice.
<b>Skin Contact:</b>	Wash skin thoroughly with soap and water. Get medical attention if irritation persists
<b>Eye Contact:</b>	Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses. Get medical attention if any discomfort continues
<b>Ingestion:</b>	Rinse mouth. Do not induce vomiting without medical advise. Never give anything by mouth to an unconscious person
<b>Most Important Symptoms and Effects Both Acute and Delayed</b>	
<b>General:</b>	Corrosive to eyes, respiratory system and skin. Exposure may produce an allergic reaction.
<b>Inhalation:</b>	Breathing dried dust or spray mist may irritate respiratory tract
<b>Skin Contact:</b>	Prolonged contact may cause redness and irritation
<b>Eye Contact:</b>	May cause slight irritation
<b>Ingestion:</b>	Ingestion may cause stomach discomfort
<b>Indication of Any Immediate Medical Attention and Special Treatment Needed</b>	
If exposed or concerned, get medical advice and attention.	

SECTION 5: FIRE-FIGHTING MEASURES	
<b>Extinguishing Media</b>	
<b>Suitable Extinguishing Media:</b>	Use extinguishing Media appropriate for surrounding fire.
<b>Unsuitable Extinguishing Media:</b>	Do not use a heavy water stream. Use of heavy stream of water may spread fire.
<b>Special Hazards Arising From the Substance or Mixture</b>	
<b>Fire Hazard</b>	Not flammable.
<b>Explosion Hazard:</b>	Product is not explosive.
<b>Advice for Firefighters</b>	
<b>Precautionary Measures Fire:</b>	Exercise caution when fighting any chemical fire.



# THRU TUBING SYSTEMS SAFETY DATA SHEET

<b>Document #</b>	<b>Version</b>	<b>Prepared by:</b>	<b>Issue Date:</b>	<b>November 30, 2020</b>
SDS – Chemical Mix Fluid	1.1	Brad Cook	Supersedes:	All previous
<b>Chemical Mix Fluid</b>				<b>Page 3 of 7</b>

<b>Firefighting Instructions:</b>	Containers close to fire should be removed immediately or cooled with water
<b>Protection During Firefighting:</b>	Do not enter fire area without proper protective equipment, including respiratory protection.
<b>Hazardous Combustion Products:</b>	Thermal decomposition can lead to release of irritating gases and vapors
<b>Reference to Other Sections</b>	
Refer to Section 9 for flammability properties.	

## SECTION 6: ACCIDENTAL RELEASE MEASURES

<b>Personal Precautions, Protective Equipment and Emergency Procedures</b>	
<b>General Measures:</b>	
<b>For Non-Emergency Personnel</b>	
<b>Protective Equipment:</b>	Use appropriate personal protection equipment (PPE)
<b>Emergency Procedures:</b>	Evacuate unnecessary personnel.
<b>For Emergency Personnel</b>	
<b>Protective Equipment:</b>	Equip cleanup crew with proper protection.
<b>Emergency Procedures:</b>	Ventilate area.
<b>Environmental Precautions</b>	
The product should not be allowed to enter drains, water courses or the soil	
<b>Methods and Material for Containment and Cleaning Up</b>	
<b>For Containment:</b>	Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal
<b>Methods for Cleaning Up:</b>	Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. After cleaning flush away with water
<b>Reference to Other Sections</b>	
See Section 8, Exposure Controls and Personal Protection. Concerning disposal elimination after cleaning, see Section 13.	

## SECTION 7: HANDLING AND STORAGE

<b>Precautions for Safe Handling</b>	
<b>Additional Hazards When Processed:</b>	Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Avoid spills splash during use.
<b>Hygiene Measures:</b>	Wash hands before breaks and immediately after handling the product, remove and wash contaminated clothing before re-use.
<b>Conditions for Safe Storage, Including Any Incompatibilities</b>	



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<b>Chemical Mix Fluid</b>				<b>Page 4 of 7</b>

<b>Storage Conditions:</b>	Store in a dry, cool, and well-ventilated place. Keep containers closed when not in use.
<b>Incompatible Materials:</b>	No materials to be specialty mentioned
<b>Storage Temperature:</b>	Unlimited.
<b>Specific End Use(s)</b>	
This product is intended to be used as an oilwell	

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

<b>EXPOSURE CONTROLS</b>	
All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure in need of respiratory protection from workplace to workplace and should be assessed by the user in each situation	
<b>Appropriate Engineering Controls.</b> Ensure adequate ventilation. Provide mechanical general and/or local exhaust ventilation to prevent release of vapor or mist into work environment	
<b>Personal Protective Equipment.</b> Gloves. Protective goggles. Mask.	
<b>Materials for Protective Clothing.</b> Chemically resistant materials and fabrics.	
<b>Hand Protection.</b> Wear gloves impervious to water to prevent skin contact.	
<b>Eye Protection.</b> Wear ANSI approved glasses or safety goggles when handling dust. Wearing contact lenses is not recommended.	
<b>Skin and Body Protection.</b> Wear gloves, boot covers, and protective clothing impervious to water to prevent skin contact.	
<b>Respiratory Protection.</b> Wear a NIOSH approved respirator that is properly fitted and is in good condition when exposed to dust over exposure limits.	
<b>Other Information.</b> Do not eat, drink, or smoke when using.	

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

<b>Information on Basic Physical and Chemical Properties</b>	
Appearance:	Brown aqueous Solution
Odor:	Characteristic
Odor Threshold:	Not Applicable
pH:	~7
Melting Point/Freezing Point:	~0 C / 32 F / > 100 C / > 212 F
Flash Point:	~0 C / 32 F / > 100 C / > 212 F
Evaporation Rate:	Not Available
Flammability (solid/gas):	Not Applicable
Upper/Lower Flammability Limits:	Not Available
Vapor Pressure:	23 hPa @ 20 C
Vapor Density:	Not Available
Relative Density:	1.22 @ 20 C
Solubility:	Soluble in water



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<b>Chemical Mix Fluid</b>				<b>Page 5 of 7</b>

Auto-Ignition Temperature:	Not Determined
Decomposition Temperature:	Not Determined
Viscosity:	Not Available

<b>SECTION 10: STABILITY AND REACTIVITY</b>	
Reactivity:	No specific reactivity hazards associated with this product
Chemical Stability:	Stable under recommended handling and storage conditions (see Section 7)
Possibility of Hazardous Reactions:	
Hazardous Decomposition:	None known unusual fire and explosion hazards. Thermal decomposition can lead to release of irrigating gases and vapors
Hazardous Polymerization:	Will not occur
Conditions to Avoid:	Avoid excessive heat for prolonged periods of time
Incompatible Materials:	No materials to be especially mentioned

<b>SECTION 11: TOXICOLOGICAL INFORMATION</b>	
<u>Acute Effects of Exposure:</u>	
Inhalation:	Breathing dried dust or spray mist may irritate respiratory tract
Ingestion:	Ingestion may cause stomach discomfort
Skin contact:	Prolonged contact may cause redness and irritation
Eye Contact:	May cause slight irritation

<b>SECTION 12: ECOLOGICAL INFORMATION</b>	
<u>Toxicity:</u>	Not Classified. No recognized unusual toxicity to plants or animals.
Calcium Oxide (1305-78-8) :	LC50 Fish: 1070 mg/l (Exposure time: 96 h – Species: Cyprinus carpio [static])
<u>Persistence and Degradability:</u>	
	No data available
<u>Bioaccumulation Potential:</u>	
	No data available
Calcium Oxide (1305-78-8) :	BCF fish 1 (no bioaccumulation).
<u>Mobility in Soil:</u>	Soluble in water
<u>Results of PBT and vPvB assessment:</u>	The preparation contains no substance considered to be persistent, bioaccumulating nor toxic (PBT) This preparation contains no substance to be very persistent nor very bioaccumulating (vPvB)
<u>Other Adverse Effects:</u>	No data available.

<b>SECTION 13: DISPOSAL CONSIDERATIONS</b>	
<u>Waste Disposal Recommendations:</u>	Dispose of waste material in accordance with all local, regional, state, national, provincial, territorial and international regulations.



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<b>Chemical Mix Fluid</b>				<b>Page 6 of 7</b>

Additional Information:

If discarded in its purchased form, this product would not be a hazardous waste either by listing or characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing or derived from the product should be classified as a hazardous waste.

### SECTION 14: TRANSPORT INFORMATION

<u>UN Number:</u>	None
<u>UN Proper Shipping Name:</u>	The product is not covered by international regulation on the transport of dangerous goods
<u>Transport Hazard Class(es):</u>	Not regulated
<u>Packing Group, if applicable:</u>	Not regulated
<u>Environmental hazards:</u>	None
	Not regulated for transport by DOT, IMDG,IATA, TDG

### SECTION 15: REGULATORY INFORMATION

<b>US Federal Regulations</b>	
<u>Complies</u>	
<b>SARA 311/312 Hazard Categories</b>	Not a SARA 311/312 hazard
<b>US State Regulations</b>	
<u>California Prop 65</u>	This product is not known to contain chemicals considered by the State of California’s Safe Drinking Water and Toxic Enforcement Act of 1986 as causing cancer and/or reproductive toxicity at levels that are expected to pose a significant risk under anticipated use conditions
<b>CANADA Regulations</b>	
<u>Complies</u>	
<b>CANADA Regulations</b>	This Safety Data Sheet has been prepared in compliance with the Hazardous Products Regulations

### SECTION 16: OTHER INFORMATION

<u>Date of Preparation:</u>	November 30, 2020
<u>Prepared By:</u>	Thru Tubing Systems, Inc. 1806B Highway 90 East New Iberia, LA 70560 +1 (337) 606-0031

THRU TUBING SYSTEMS, INC. (TTS) MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY



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<b>Chemical Mix Fluid</b>				<b>Page 7 of 7</b>

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