

**American National Standards Institute (ANSI)/NSF International (NSF)
STD 60 Certified Well Drilling Aids and Well Sealants
October 6, 2016**

This list is presented in alphabetical order by manufacturer and was compiled using listings from: NSF (www.nsf.org) and the Underwriters Laboratories (www.ul.com). Periodic updates to this list will be made available on the MDH Well Management Section website at: American National Standards Institute (ANSI)/NSF International (NSF) STD 60 Certified Well Drilling Aids and Well Sealants (www.health.state.mn.us/divs/eh/wells/lwcinfo/drillaid.html). Products that were added to this list since the last revision are highlighted in **yellow** and noted with an asterisks (*).

Following is a partial list of requirements for drilling fluids and grouts used in wells and borings in Minnesota (complete requirements can be found in Minnesota Rules, chapter 4725, Wells and Borings):

- Drilling fluid additives, including bentonite, must meet the requirements of ANSI/NSF Standard 60-2003e.
- Bentonite used for grout must meet ANSI/NSF Standard 60, or be a natural bentonite without additives.
- Grout must be mixed into a water slurry and pumped through a tremie pipe or the casing.
- Bentonite pellets, chips, and dry granular bentonite may be used only as an intermediate seal between a gravel pack and grout in any regulated well or boring. The layer of bentonite pellets, bentonite chips, or granular bentonite must not exceed 5 feet in thickness, must not extend into a confining layer, and must not extend more than 10 feet above the static water level.

Products listed as well drilling aids, drilling fluids, foaming agents, and well sealants are designed to be flushed out prior to using the system for drinking water. The well is to be properly flushed and drained before being placed in service when using these products.

ABI, Inc. (American Bentonite International, Inc.); Streamwood, Illinois

ABI 8-Mesh	well sealant
ABI Crumbles, ABI Granular	well drilling aids
ABI Gel	well drilling aid, drilling fluid
ABI Grout	well drilling aid
ABI Hi Yield	well drilling aid
ABI Plug	well drilling aid

Akzo Nobel Surface Chemistry, LLC; Chattanooga, Tennessee

Alcodrill HPD-L ¹	well drilling aid
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Alpine Technical Services, Midvale, Utah

ATS-9003 ¹	well drilling aid
ATS-3858 ^{1,2}	well drilling aid

AMC, Salt Lake City, Utah

AMC Corewell ^{1,2}	well drilling aid
Aus-Ben Xtra, Aus-Gel Xtra	well drilling aids
Aus-Gel	well drilling aid, drilling fluid
Aus-Plug ^{1,2}	well drilling aid, drilling fluid
Bentonite Chips (Medium)	well sealant
Clay Doctor ^{1,2}	well drilling aid
Coated Bentonite Pellets	well sealant
CR-650 ^{1,2}	well drilling aid
Ezee-Pac L, Ezee-Pac R	well drilling aids
HV Foam ^{2,3}	foaming agent
Liquipol ^{1,2}	well drilling aid
Liquisperse HT ¹	well drilling aid

Aquamark, Inc.; Chesterland, Ohio

AQ 310-P ^{1,2}	well drilling aid
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Aquasol Corporation, Rock Hill, South Carolina

Aquabloc D,* Aquabloc LC*	well drilling aids
Aquadril D,* Aquadril LC*	well drilling aids

Ashland Inc., Columbus, Ohio

Aquavis 2740	well drilling aid, drilling fluid
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Baroid PSL (Halliburton), Houston, Texas

AQF-2 ³	foaming agent
Aqua-Clear PFD ^{1,2}	well drilling aid
Aquagel, Aquagel Gold Seal	well drilling aids, drilling fluids
Aquaguard	well sealant
Barad-399 Core ¹	drilling fluid
Baroid Bentonite Pellets	well sealant
Barogrout*	well sealant
Barotherm Gold ⁴ (IDP-502)	well sealant
Benseal	well sealant
Bore-Gel	drilling fluid
Bore-Grout	well sealant
Casing Seal	well sealant
CLAY-DRILL ^{1,2*}	well drilling aid
EZ-Mud ^{1,2} , EZ-Mud DP ^{1,2}	well drilling aids
EZ-Mud DP Gold ^{1,2}	well drilling aid
EZ-Mud Gold ^{1,2} , EZ-Mud Plus ^{1,2}	well drilling aids
EZ-Seal ^{1,2}	well sealant
Fuse-It ^{1,2}	well drilling aid
Holeplug	well sealant
IDP-399 ¹	drilling fluid
IDP-512	well drilling aid
IDP-656*	well drilling aid
IDP-567A ^{1,2} , IDP-620 ^{1,2} , IDP-623 ^{1,2}	well drilling aids
IDP-670 ^{1,2} ,* IDP-676 ^{1,2*}	well drilling aids

Baroid PSL (Halliburton), Houston, Texas (continued)

N-Seal	drilling fluid
National Standard,* National 16,* National 30*	well sealants
Poly-Bore ^{1,2}	well drilling aid
Quik-Bore	well drilling aid
Quik-Foam ³	foaming agent
Quik-Gel, Quik-Gel Gold	well drilling aids, drilling fluids
Quik-Grout	well sealant
Quik Mud D-50 ^{1,2} , Quik Mud Gold ^{1,2}	well drilling aids
Quik-Trol, Quik-Trol Gold	well drilling aids
Quik-Trol LV, Quik-Trol Gold LV	well drilling aids
System-Floc 360 ¹	well drilling aid

BASF Corporation – Water Solutions (formerly CIBA Corporation), Suffolk, Virginia

Agefloc WT6303 ^{1,2}	well drilling aid
Alcomer 74L	well drilling aid
Alcomer 110RD ^{1,2} , Alcomer 120L ^{1,2}	well drilling aids
Alcomer 123LA ^{1,2} , Alcomer XX-Poly ^{1,2}	well drilling aids
Alcomer 1771 ^{1,2} , Alcomer 24 ^{1,2}	well drilling aids
Magnafloc 120L ^{1,2}	well drilling aid

Bentonite Performance Minerals, LLC (a subsidiary of Halliburton); East Houston, Texas

Bara-Kade Plus	drilling fluid
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Black Hills Bentonite, LLC; Casper, Wyoming (see also GeoPro, Inc.)

Bentonite Grout, Bentonite Plug	well sealants
BH Grout 20, BH Grout Ultra	well sealants
Thermal Grout K ^{5*}	well sealant
Thermal Grout Lite ⁴	well sealant
Thermal Grout Lite/PowerTEC ⁵	well sealant
Thermal Grout Select ⁴	well sealant

C.C.I., Vernon, California

CP-9900 ^{1,2}	well drilling aid
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CETCO (Colloid Environmental Technologies Company), Hoffman Estates, Illinois

Accu-Vis ^{1,2}	well drilling aid
Belle Crumbles	well sealant
CETCO Coated Tablets 1/4 and 3/8"	well sealants
CETCO/Volclay Crumbles, Crumbles #8	
Granular Grout, Grout	well sealants
CETCO/Volclay/PureGold Chips,	
Coarse Chips, Medium Chips	well sealants
Clay Cutter Dry ¹	well drilling aid
Geothermal Grout ⁴	well sealant
High TC Geothermal Grout ⁴	well sealant
Hydraul EZ	well drilling aid, drilling fluid
Insta-Pac ^{1,2} , Insta-Vis Plus ^{1,2}	well drilling aids
PureGold Grout	well sealant
Shore Pac Liquid ^{1,2}	well drilling aid

CETCO (Colloid Environmental Technologies Company), Hoffman Estates, Illinois (continued)

Super Gel-X	well drilling aid
Super Thin ¹	well drilling aid
Velocity-Pro	well drilling aid
Versafoam Plus ³	foaming agent
Xtra Gel	well drilling aid

Chameleon Industries, Inc., Mesquite, Texas

CI1066BPWG ^{1,2}	well drilling aid
CI1066PWG ^{1,2}	well drilling aid

Chongqing Lihong Fine Chemicals Co., Nan an District Chongqing, China

PAC-L	drilling fluid
PAC-R	drilling fluid

DSS Chemical Company, Ballwin, Missouri

DSS 3175 ^{2*}	well drilling aid
DSS 3184 ^{2*}	well drilling aid

E & E Chemical and Service Company, LLC; Parrish, Florida

Drilplex HDD ¹	well drilling aid
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Economy Mud Products Company, Houston, Texas

Economy Gel	well drilling aid
Econoplug Coarse, Econoplug Medium	well drilling aids
Econoplug Grout	well sealant
Econoplug No. 8 and No. 16	well drilling aids
Poly Gel	well drilling aid

Fort Bend Services, Stafford, Texas

FBS-1503 ^{1,2}	well drilling aid
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Geopro, Inc., Elkton, South Dakota (see also Black Hills Bentonite, LLC)

BH Grout 20	well sealant
Thermal Grout Lite ⁴	well sealant
Thermal Grout Select ⁴	well sealant
PowerTEC ⁵	well sealant
PowerTECx ⁵	well sealant

Hawkins Water Treatment Group, Roseville, Minnesota

WT-3051-P ^{1,2} , WT-3052-P ^{1,2}	well drilling aids
WT-3272-P ^{1,2} , WT-3715-P	well drilling aids
WT-3805-P ^{1,2} , WT-3806-P ^{1,2}	well drilling aids
WT-3882-P ^{1,2} , WT-3989-P ^{1,2}	well drilling aids

Hychem, Inc.; Tampa, Florida

Hyperdrill AE 853 ^{1,2}	well drilling aid
Hyperdrill AE 856 ^{1,2}	well drilling aid
Hyperdrill AD 859 ^{1,2}	well drilling aid
Hyperdrill DF 2010 ¹	well drilling aid

Hydro Resources (Quality Drilling Fluids), Fort Lupton, Colorado

Hydrothin ^{1,2}	well drilling aid
Hydro Vis 30 ^{1,2}	well drilling aid
Hydrovis-50 ^{1,2}	well drilling aid

Ked Group, Inc.; Orlando, Florida

EK 53 PWG-1-2-WDA ^{1,2}	well drilling aid
EK 533 PWG-B30 1-2-WDA ^{1,2}	well drilling aid
EKF 533-A-PWG-1-2-WDA ^{1,2}	well drilling aid
EKF 533 PWG-1-2-WDA ^{1,2}	well drilling aid
FS 000 PWG WDA ¹	well drilling aid
FS 018 PWG DA ¹	well drilling aid
PA 120 SHU PWG ^{1,2}	well drilling aid
PA 120SHU PWG WDA ^{1,2}	well drilling aid
PA 120 VLM PWG ^{1,2}	well drilling aid
PA 120VLM PWG WDA ^{1,2}	well drilling aid
PA 130 BPM-1-2PWG-WDA ^{1,2}	well drilling aid
PA 130 PWG-1-2-WDA ^{1,2}	well drilling aid
PA 130 PWG W10%SALT-2-WDA ^{1,2}	well drilling aid
PA 130 VLM PWG-2-WDA ^{1,2}	well drilling aid
PA 140 PWG-2 ^{1,2}	well drilling aid

Kemira Water Solutions (formerly Cytec), Bartow, Florida

Cydril 5310 ^{1,2}	well drilling aid
KemDril 5300 ^{1,2}	well drilling aid
KemDril A1355 ^{1,2} , KemDril A1363 ^{1,2}	well drilling aids
KemEflow A-4363 ^{1,2}	well drilling aid
KemEflow A-4365 ^{1,2}	well drilling aid
KemFlow A-4355 ^{1,2} , KemFlow A-4363 ^{1,2}	well drilling aids
Sedifloc 7030HHM ^{1,2}	well drilling aid
Superfloc 5300 ^{1,2}	well drilling aid
Superfloc A-1820 Flocculant ^{1,2}	well drilling aid
Superfloc A-1883LMW ^{1,2}	well drilling aid

Klar Water, Inc.; Maumelle, Arizona

PolyKlar E-1330P ^{1,2}	well drilling aid
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Lost Circulation Specialists, Inc.; Stagecoach, Texas

Magma Fiber Coarse	well drilling aid
Magma Fiber Fine	well drilling aid

Lyncole Xit Grounding, Torrance, California

Lynconite	well sealant
Lynconite II	well sealant
Lyncole Grounding Gravel	well sealant

M-I, LLC (M-I Swaco), A Schlumberger Company; Houston, Texas

Aztec Hi-Yield	well drilling aid
Drilplex HDD ¹	well drilling aid
Federal Bentonite	well drilling aid

M-I, LLC (M-I Swaco), A Schlumberger Company; Houston, Texas (continued)

Gopher Grout	well sealant
Kwik-Plug Coarse, Fine, Medium, Micro	well sealants
Kwik-Plug Pellets Coated and Uncoated (1/2, 1/4, and 3/8 inch)	well sealants
M-I Gel, M-I Gel Supreme	well drilling aids
Max Gel	well drilling aid
Platinum Foam Plus ³	foaming agent
Platinum PAC, Platinum PAC UL	well drilling aids, drilling fluid
Poly-Plus ^{1,2} , Poly-Plus 2000 ^{1,2}	well drilling aids
Poly-Plus EHV ^{1,2} , Poly-Plus LV ^{1,2}	well drilling aids
Poly-Plus RD ^{1,2}	well drilling aid
Ringfree ¹	well drilling aid
Smooth Grout 20, Smooth Grout 30	well sealants
Smooth Grout Thermal ⁴	well sealant
Tackle ¹	well drilling aid

Millennium Water Management, Dartmouth, Nova Scotia, Canada

MWML EM 533PWG ^{1,2}	well drilling aid
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MINEX, LLC; Virginia, Minnesota

1330 ^{1,2}	well drilling aid
Minex 1330 ^{1,2}	well drilling aid

Nalco Company, Naperville, Illinois

Nalco ASP-700 ^{1,2}	drilling fluid
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NDS Drilling, Elko, Minnesota

T-100 MUD ^{1,2}	drilling fluid
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Neo Solutions, Inc.; Beaver, Pennsylvania

HW 1162P ¹ , HW 1353P ¹	well drilling aids
NS 1162P ¹ , NS 1353P ¹	well drilling aids
NS 6350P ^{1,2} , NS 6353P ^{1,2} , NS 6355P ^{1,2}	well drilling aids
NS 6850P ^{1,2} , NS 6853P ^{1,2} , NS 6950P ^{1,2}	well drilling aids

Newpark Drilling Fluids, Katy, Texas

DrilEase 242 ^{1,2}	well drilling aid
NewPHPA ^{1,2}	well drilling aid

Northstar Chemical, Inc.; Sherwood, Oregon

EA-649 PWG ^{1,2}	well drilling aid
MEA-649 PWG ^{1,2}	well drilling aid

Northstar Fluid Solutions, Englewood, Colorado

Foam-Star Ultra ³	foaming agent
Star Drill 2000 ^{1,2}	well drilling aid
Star Drill Dry ^{1,2}	well drilling aid
Star Drill RD ^{1,2}	well drilling aid
Star Gel Xtra	well drilling aid, drilling fluid

PDSCO, INC. (Polymer Drilling Systems); El Dorado, Arizona

Bentonite Grout, Bentonite Plug	well sealants
Bentonite Plug TR30, TR60, and TR90	well sealants
Bentonite Powder	well sealant
Coarse Plug	well sealant
Cowboy Brand Bentonite Pellets, Granular Seal, Grout, Plug Coarse, Plug Fine, Plug Medium	well sealants
Fine Plug, Medium Plug	well sealants
Granular Seal, Granular Seal TR30	well sealants
Natural Bentonite Gel	well sealant
PDS Co Bentonite	well sealant
Pel Plug, Pel-Plug TR30, TR60, and TR90	well sealants

Redmond Minerals, Inc.; Redmond, Utah

Swell Plug Coarse	well sealant
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Seatex, LTD.; Rosenberg, Texas

C-Drill ^{1,2}	well drilling aid
Drill Foam Premium ³	foaming agent
IDP-567B ^{1,2}	well drilling aid

SD CO., LTD.; Seoul, Republic of Korea

EARTH-D	drilling fluid, well sealant
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Sinclair Well Products and Services, Cerritos, California

Ultra Gel	drilling fluid, well drilling aid
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SNF, Inc.; Riceboro, Georgia

Clarifloc A-3333P ^{1,2} , Clarifloc A-3340 ^{1,2}	well drilling aids
Clarifloc A-3345 ^{1,2} , Clarifloc A-3360 ^{1,2}	well drilling aids
Flopam AN 934 BPM PWG ^{1,2}	well drilling aid
Flopam AN 934 PWG ^{1,2}	well drilling aid
Flopam AN 934 XD PWG ^{1,2}	well drilling aid
Flopam AN 945 PWG ^{1,2}	well drilling aid
Flopam AN 945 VHM PWG ^{1,2}	well drilling aid
Flopam AN 945 XD PWG ^{1,2}	well drilling aid
Flopam AN 956 PWG ^{1,2}	well drilling aid
Flopam DW 533 PWG ^{1,2}	well drilling aid
Flopam DW 533 PWGBCK ^{1,2}	well drilling aid
Flopam DW 533 B PWG ^{1,2}	well drilling aid
Flopam EM 533 A25 PWG ^{1,2}	well drilling aid
Flopam EM 533 B30 PWG ^{1,2}	well drilling aid
Flopam EM 533 PWG ^{1,2}	well drilling aid
Flopam EMF 532 PWG ^{1,2}	well drilling aid
Flopam EMF 533 B26 PWG ^{1,2}	well drilling aid
Flopam EMF 533 B30 PWG ^{1,2}	well drilling aid
Flopam EMF 533 PWG ^{1,2}	well drilling aid
Floquat FL 2449 PWG ¹	well drilling aid
Flosperser 3000 PWG ¹ , Flosperser 3018 CS PWG ¹	well drilling aids

Solenis, LLC; Wilmington, Delaware

FR10RS^{1,2}*

Praestol A3040 LAD^{1,2}

Praestol A3040 LTR^{1,2}

drilling fluid

drilling fluid

drilling fluid

Tolsa Wyoming Bentonite Corp., Casper, Wyoming

Berkbent 90*

drilling fluid, well drilling aid

Teague Mineral Products, Adrian, Oregon

Custom Sealant

Industrial 200

Perma Plug

well sealant

well sealant

well sealant

Unitech Zibo, Inc.; Oakland, California

Dynapac DHV

Dynapac DHV Plus

Dynapac DLV

Dynapac DLV Plus

well drilling aid

well drilling aid

well drilling aid

well drilling aid

Western Clay Company, Aurora, Utah

Prime-Gel, Prime-Gel Premium

Slikgel High Yield

Swell Plug Coarse

well drilling aids, drilling fluids

well drilling aid, drilling fluid

well sealant

Western Hydro Corp., Hayward, California

Drill Mud 220

Hydro Bore 240

Hydro Foam³

Hydro Grout 20, Hydro Grout 30

Hydro Plug 3/8 and 3/4

Hydro Plug 8 and 16

Hydro Polymer^{1,2}

Hydro Thin

well drilling aid

well drilling aid

foaming agent

well sealants

well sealants

well sealants

well drilling aid

well drilling aid

Wyo-Ben, Inc., Billings, Montana

Air Foam³

Cementgel

Dril-Trol LV, Dril-Trol QD

e-Grout

Enviroplug Coarse, Enviroplug Medium

Enviroplug Grout

Enviroplug No. 8, No. 16, and No. 20

Extra High Yield Bentonite

Grout-Well, Grout-Well DF

Hydrogel

Kwik-Vis "D"^{1,2}

Micro-Gel

MTA-1

Naturalgel

Plugz-It, Plugz-It Max

foaming agent

well drilling aid

well drilling aids

well sealant

well sealants

well sealant

well sealants

well drilling aid

well sealants

well drilling aid

well drilling aid

well drilling aid

well drilling aid

well drilling aid

well sealants

Wyo-Ben, Inc., Billings, Montana (continued)

SW101	well drilling aid
TD-16 ^{1,2}	well sealant
Therm-Ex Grout ⁴ , Therm-Ex Grout Plus ⁴	well sealants
ThinZ-It	well drilling aid
Tru-Bore	well drilling aid
VC-55 ^{1,2}	well drilling aid
Wyo-Foamer ³	foaming agent
Wyo-Vis ^{1,2} , Wyo-Vis LVP ^{1,2}	well drilling aids, drilling fluids
Wyo-Vis HP ^{1,2}	well drilling aid

Notes:

- ¹ These products should not be used in constructing wells in highly porous formations such as cavernous limestone. Certification of these products is based on a well drilling model with the following assumptions:
- The amount of well drilling fluid used is 3780 liters (1,000 gallons), to which the drilling fluid has been added at the level specified in ANSI/NSF Standard 60, or at the manufacturer's recommended level.
 - The aquifer contains 3.1 million liters of water (815,000 gallons), based on a 0.5 acre aquifer of 6.1 meters depth (20 feet) and 25 percent porosity.
 - The bore hole is 61 meters in total depth (200 feet), the screen is 6.1 meters in length (20 feet), and the bore hole diameter is 25.4 cm. (10 inches).
 - The amount of well drilling fluid removed from the well during construction is equal to the combined volumes of the casing, the screen and bore hole annulus around the casing and the screen, plus an additional amount removed through well disinfection and development (90 percent of that initially applied is removed).
- ² These products contain polyacrylamides. Because questions remain regarding potential health risks from exposure to these products, the MDH recommends that they not be added to drilling fluid during drilling of potable water wells.
- ³ Product certification is based on a well drilling model using assumptions stated in ANSI/NSF Standard 60, Section 8 for well drilling foamers. These products are designed to be flushed out prior to using the system for drinking water. Before being placed in service, the well is to be properly flushed according to the manufacturer's use instructions.
- ⁴ These products are intended to be mixed with sand at ratios specified by the manufacturer. Some bentonite and sand mixtures do not meet the grouting materials specifications found in Minnesota Rules, part 4725.0100, subpart 21d or part 4725.7050, subpart 1, item D. These mixtures may not be used unless a variance is obtained from the MDH. MDH has granted variances to allow use of these products.
- The August 4, 2008, amendments to Minnesota Rules, chapter 4725 allow the use of thermally enhanced bentonite grout for grouting the bore hole of a vertical heat exchanger, provided that the thermally enhanced bentonite grout consists of a fluid mixture of not more than 17.5 gallons of water, not more than 200 pounds of sand with 80 percent or more of the sand smaller than 0.0117 inch (passing U.S. Sieve No. 50), and a minimum of 50 pounds of bentonite.
- ⁵ These products are thermally enhanced bentonite grouts using graphite instead of sand. Grout must consist of a mixture of not more than 17.5 gallons of water, not more than 20 pounds of graphite, and a minimum of 50 pounds of bentonite.