



Proposed ACAA 4Q Well Hydraulic Fracturing Fluid Additives

Ingredients	Chemical Abstract Service Number (CAS #)	% of Total Usage (by Mass)
Water	7732-18-5	83.67637%
Crystalline Silica in the form of Quartz	14808-60-7	16.15272%
Hydrogen chloride	7647-01-0	0.02003%
Methyl alcohol	67-56-1	0.00025%
N,N-Dimethylformamide	68-12-2	0.00004%
Ethylene glycol	107-21-1	0.00007%
2-Butoxyethanol	111-76-2	0.00002%
Poly(oxy-1,2-ethanediyl), .alpha.-(4-nonylphenyl)-.omega.-hydroxy-, branched	127087-87-0	0.00002%
Tar Bases, quinoline derivs, benzyl chloride-quat	72480-70-7	0.00002%
Cinnamaldehyde	104-55-2	0.00002%
Citric acid	77-92-9	0.00025%
Glutaraldehyde	111-30-8	0.00207%
Didecyl dimethyl ammonium chloride	7173-51-5	0.00031%
Quaternary Ammonium Compounds	68424-85-1	0.00031%
Ethanol	64-17-5	0.00016%
AA/ATBS Co-polymer	9003-05-8	0.00150%
AA/Maleic Anhydride Co-polymer	9003-04-7	0.02700%
Acrylamide-Chloride Salt of Trimethylammonio-Ethyl Acrylate Copolymer	69418-26-4	0.03613%
Alkanes, C12-26-Branched and Linear	90622-53-0	0.03613%
Ethoxylated Alcohols (C12-16)	68551-12-2	0.00452%

Prepared: December 2025



Proposed ACAA 4R Well Hydraulic Fracturing Fluid Additives

Ingredients	Chemical Abstract Service Number (CAS #)	% of Total Usage (by Mass)
Water	7732-18-5	83.67637%
Crystalline Silica in the form of Quartz	14808-60-7	16.15272%
Hydrogen chloride	7647-01-0	0.02003%
Methyl alcohol	67-56-1	0.00025%
N,N-Dimethylformamide	68-12-2	0.00004%
Ethylene glycol	107-21-1	0.00007%
2-Butoxyethanol	111-76-2	0.00002%
Poly(oxy-1,2-ethanediyl), .alpha.-(4-nonylphenyl)-.omega.-hydroxy-, branched	127087-87-0	0.00002%
Tar Bases, quinoline derivs, benzyl chloride-quat	72480-70-7	0.00002%
Cinnamaldehyde	104-55-2	0.00002%
Citric acid	77-92-9	0.00025%
Glutaraldehyde	111-30-8	0.00207%
Didecyl dimethyl ammonium chloride	7173-51-5	0.00031%
Quaternary Ammonium Compounds	68424-85-1	0.00031%
Ethanol	64-17-5	0.00016%
AA/ATBS Co-polymer	9003-05-8	0.00150%
AA/Maleic Anhydride Co-polymer	9003-04-7	0.02700%
Acrylamide-Chloride Salt of Trimethylammonio-Ethyl Acrylate Copolymer	69418-26-4	0.03613%
Alkanes, C12-26-Branched and Linear	90622-53-0	0.03613%
Ethoxylated Alcohols (C12-16)	68551-12-2	0.00452%

Prepared: December 2025



Proposed ACAA 4S Well Hydraulic Fracturing Fluid Additives

Ingredients	Chemical Abstract Service Number (CAS #)	% of Total Usage (by Mass)
Water	7732-18-5	83.67000%
Crystalline Silica in the form of Quartz	14808-60-7	16.15272%
Hydrogen chloride	7647-01-0	0.02003%
Methyl alcohol	67-56-1	0.00025%
N,N-Dimethylformamide	68-12-2	0.00004%
Ethylene glycol	107-21-1	0.00007%
2-Butoxyethanol	111-76-2	0.00002%
Poly(oxy-1,2-ethanediyl), .alpha.-(4-nonylphenyl)-.omega.-hydroxy-, branched	127087-87-0	0.00002%
Tar Bases, quinoline derivs, benzyl chloride-quat	72480-70-7	0.00002%
Cinnamaldehyde	104-55-2	0.00002%
Citric acid	77-92-9	0.00025%
Glutaraldehyde	111-30-8	0.00207%
Didecyl dimethyl ammonium chloride	7173-51-5	0.00031%
Quaternary Ammonium Compounds	68424-85-1	0.00031%
Ethanol	64-17-5	0.00016%
AA/ATBS Co-polymer	9003-05-8	0.00150%
AA/Maleic Anhydride Co-polymer	9003-04-7	0.00150%
Acrylamide-Chloride Salt of Trimethylammonio-Ethyl Acrylate Copolymer	69418-26-4	0.03613%
Alkanes, C12-26-Branched and Linear	90622-53-0	0.03613%
Ethoxylated Alcohols (C12-16)	68551-12-2	0.00452%

Prepared: December 2025



Proposed ACAA 4Y Well Hydraulic Fracturing Fluid Additives

Ingredients	Chemical Abstract Service Number (CAS #)	% of Total Usage (by Mass)
Water	7732-18-5	83.67637%
Crystalline Silica in the form of Quartz	14808-60-7	16.15271%
Hydrogen chloride	7647-01-0	0.02003%
Methyl alcohol	67-56-1	0.00025%
N,N-Dimethylformamide	68-12-2	0.00004%
Ethylene glycol	107-21-1	0.00007%
2-Butoxyethanol	111-76-2	0.00002%
Poly(oxy-1,2-ethanediyl), .alpha.-(4-nonylphenyl)-.omega.-hydroxy-, branched	127087-87-0	0.00002%
Tar Bases, quinoline derivs, benzyl chloride-quat	72480-70-7	0.00002%
Cinnamaldehyde	104-55-2	0.00002%
Citric acid	77-92-9	0.00025%
Glutaraldehyde	111-30-8	0.00207%
Didecyl dimethyl ammonium chloride	7173-51-5	0.00031%
Quaternary Ammonium Compounds	68424-85-1	0.00031%
Ethanol	64-17-5	0.00016%
AA/ATBS Co-polymer	9003-05-8	0.00150%
AA/Maleic Anhydride Co-polymer	9003-04-7	0.00150%
Acrylamide-Chloride Salt of Trimethylammonio-Ethyl Acrylate Copolymer	69418-26-4	0.03613%
Alkanes, C12-26-Branched and Linear	90622-53-0	0.03613%
Ethoxylated Alcohols (C12-16)	68551-12-2	0.00452%

Prepared: December 2025



Proposed ACAA 4T Well Hydraulic Fracturing Fluid Additives

Ingredients	Chemical Abstract Service Number (CAS #)	% of Total Usage (by Mass)
Water	7732-18-5	83.67637%
Crystalline Silica in the form of Quartz	14808-60-7	16.15271%
Hydrogen chloride	7647-01-0	0.02003%
Methyl alcohol	67-56-1	0.00025%
N,N-Dimethylformamide	68-12-2	0.00004%
Ethylene glycol	107-21-1	0.00007%
2-Butoxyethanol	111-76-2	0.00002%
Poly(oxy-1,2-ethanediyl), .alpha.-(4-nonylphenyl)-.omega.-hydroxy-, branched	127087-87-0	0.00002%
Tar Bases, quinoline derivs, benzyl chloride-quat	72480-70-7	0.00002%
Cinnamaldehyde	104-55-2	0.00002%
Citric acid	77-92-9	0.00025%
Glutaraldehyde	111-30-8	0.00207%
Didecyl dimethyl ammonium chloride	7173-51-5	0.00031%
Quaternary Ammonium Compounds	68424-85-1	0.00031%
Ethanol	64-17-5	0.00016%
AA/ATBS Co-polymer	9003-05-8	0.00150%
AA/Maleic Anhydride Co-polymer	9003-04-7	0.00150%
Acrylamide-Chloride Salt of Trimethylammonio-Ethyl Acrylate Copolymer	69418-26-4	0.03613%
Alkanes, C12-26-Branched and Linear	90622-53-0	0.03613%
Ethoxylated Alcohols (C12-16)	68551-12-2	0.00452%

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