

**Chemicals Used in the Hydraulic Fracturing Process in Pennsylvania**  
**Prepared by the Department of Environmental Protection**  
**Bureau of Oil and Gas Management**  
**Compiled from Material Safety Data Sheets (MSDS) obtained from Industry**

Chemical	Product Name
2,2-Dibromo-3-Nitrilopropionamide	Bio Clear 1000/Bio Clear 2000/ Bio-Clear 200/ BioRid20L/ EC6116A
2-methyl-4-isothiazolin-3-one	X-Cide 207
5-chloro-2-methyl-4-isothiazolin-3-one	X-Cide 207
Acetic Acid	Fe-1A Acidizing Composition/ Packer Inhibitor
Acetic Anhydride	Fe-1A Acidizing Composition
Acetylene	GT&S Inc./ Airco
Alcohol Ethoxylated C12-16	NE-200
Alkyl benzene sulfonic acid	Tetrolite AW0007/ FR-46
Ammonia (aqueous)	FAW-5
Ammonium Bifluoride	ABF 37%
Ammonium Persulfate	AP Break
Ammonium Bisulfite	Techni-Hib 604/ Fe OXCLEAR/ Packer Inhibitor
Ammonium chloride	Salt Inhibitor
Ammonium Salt (alkylpolyether sulfate)	Tetrolite AW0007
Amorphous silica	TerraProp Plus/ Bituminous Coal Fly Ash ASTM C618
Benzoic Acid	Benzoic Acid
Boric Acid	BC-140/ Unilink 8.5
Boric Oxide	XLW-32
Calcium Chloride	Dowflake
Calcium Oxide	Bituminous Coal Fly Ash ASTM C618
carboxymethylhydroxypropyl guar blend	Unigel CMPHG
Choline Chloride	Clay Treat-2C
Cinnamaldehyde	ENVIROHIB 2001
Citric Acid	Ferrotrol 300L/ IC-100L
Complex polyamine salt	Clay Master-5C
Crystalline Silica: Cristobalite	
Crystalline Silica: Quartz	Silica Sand/ / Atlas PRC/ Best Sand/ Bituminous Coal Fly Ash ASTM C618
Cupric chloride dihydrate	Ferrotrol 280L
Cured resin	LiteProp 125
Cyclohexanes	CS-2
Dazomet	ICI-3240
Diethylene Glycol	Scaletrol 720/ Scaletrol 7208
d-Limonene	MA-844W

Enzyme	GBL-8X
EO-C7-9-iso-, C8 rich-alcohols	NE-940/ NE-90
EO-C9-11-iso-, C10-rich alcohols	NE-940/ NE-90
Ethoxylated Alcohol	FRW-14/ SAS-2/ Flomax 50/ WFR-3B
Ethyl Acetate	Castle Thrust
Ethyl Alcohol	FAW-5/ Castle Shop Solv/ Dallas Morris
Ethylbenzene	NDL-100/ PARANOX/ Uniflo II
Ethylene Glycol	ENVIROHIB 2001/ ICA-2/ LEB 10X/ Scaletrol 720/ Scaletrol 7208/ CC 300/ Clachek A/ Clachek LP/ Ironsta II B/ NCL-100/ BC 140/ NCL-100/ Flomax 50/ NCL/ Scalehib 100/ Unihib O/ Unilink 8.5
Formic Acid	ENVIROHIB 2001
Gluconic Acid	Interstate ICA-2
Glutaraldehyde	Alpha 114/Alpha 125/ ICI-150
Glycerol	Bio Sealers
Glycol Ethers	ENVIROHIB 2001/AMPHOAM 75/ PARANOX/ Uniflo II/ Unifoam/ WNE-342LN
Guar Gum	PROGUM 19 GUAR PRODUCT/ Unigel 19XL/ Benchmark Polymer 3400/ WGA-15/ Unigel 5F
Hydrochloric Acid	Hydrochloric Acid (HCL)/ TETRAClean 542/ Muriatic Acid
Hydrochloric Acid 3% - 35%	Hydrochloric Acid 3% - 35%
Isopropanol	AFS 30 Blend/ FAC-1W/ FAC-3W/ MA-844W/ NE 23/ NE-940/ Flomax 50/ Tetrolite AW0007/ FMW25 Foamer/ CS-2
Isopropyl Alcohol	NFS-102/ WFT-9511/ LT-32/ AR-1/ Flomax 50/ NDL-100/ Unibac/ Uniflo II/ Uniflo/ Unihib O/ WNE-342LN
Methanol	AFS 30 Blend/ NE-200/ Activator Superset-W/ CI-14/ FAW-5/ GasFlo/ Inflo-250W/ LT-32/ NE-940/ XLW-32/ Tetrolite AW0007/ FMW25 Foamer/ 40 HTL Corrosion Inhibitor/ NE 100/ HAI-OS Acid Inhibitor/ Unibac/ NE-90/ Packer Inhibitor
Methyl Alcohol	Clearbreak 400/ Super Surf/ Castle Shop Solv
Methyl Salicylate	Bio Sealers
n-butanol	AirFoam 311
Nitilotriacetamide	Salt Inhibitor
Phenolic Resin	Atlas PRC
Polyethylene Glycol	NE-940/ EC6116A/ NE-90
Polyethylene Glycol Mixture	Bio Clear 2000/ Bio-Clear 200
Polyoxylalkylene sulfate	FMW25 Foamer
Polysaccharide Blend	GW-3LDF

Potassium Carbonate	BF-7L
Potassium Chloride	Dowflake
Potassium Hydroxide	B-9, pH Increase Buffer/ BXL-2
Propargyl Alcohol	CI-14/ HAI-OS Acid Inhibitor
Propylene Glycol	SAS-2/ WFR-3B
Silica	S-8C, Sand, 100 mesh/ Montmorillonite clay
Sodium Bicarbonate	K-34
Sodium Bromide	BioRid 20L
Sodium Hydroxide	Caustic Soda/ ICI-3240/ BioRid B-71
Sodium Persulphate	High Perm SW-LB
Sodium Xylene Sulfonate	FAC-2/ FAC-3W
Sulfuric Acid	Sulfuric Acid
Surfactants	AFS-30/ GasFlo/ Inflo-250W
Talc	Adomite Aqua
Tetrakis(hydroxymethyl)phosphonium sulfate	Magnacide 575 Microbiocide
Tetramethyl ammonium Chloride	Clay Treat-3C
Trimethyloctadecylammonium chloride	FAC-1W/ FAC-3W
6/10/2010	