

Chemicals that may be used in Australian CSG fracking fluid*

Chemical	Fracking use	Common/household use example
1-Propanol	Complexor	Used as a solvent in the pharmaceutical industry
2-Butoxyethanol	Used to reduce surface tension to aid in gas flow	Used in whiteboard cleaners, liquid soaps, cosmetics and lacquers.
Acetic Acid	pH buffer	Gives vinegar its taste
Acrylic copolymer	Lubricant	Used as a soil-repellent coating by the building industry
Ammonium persulfate	Breaker used to reduce viscosity (turns a gel into water)	Used in hair bleach, blot gels and glass cleaning products
Boric Acid	Crosslinker to increase viscosity	Used in antiseptics to treat cuts and fungal infections (athlete's foot)
Boric Oxide	Crosslinker to increase viscosity	Used to produce high strength alloys, glasses and ceramics
Carbonic acid	Crosslinker to increase viscosity	Found in soft drinks, champagne, and blood
Carboxy-Methyl Hydroxy-Propyl Guar	Gelling agent (thickens fluid to help suspend sand)	A more refined version of guar which is found in food products
Crystalline silica (cristobalite)	Proppant (holds open fractures)	Sand and gravel
Crystalline silica (quartz)	Proppant (holds open fractures)	Sand and gravel
Citric Acid	Iron control or for cleaning well bores before fracking	Contained in orange juice
Diammonium Peroxodisulphate	Breaker used to reduce viscosity (turns a gel into water)	Used in hair bleach, blot gels and glass cleaning products
Disodium Octaborate tetrahydrate	Gelling agent/Crosslinker to increase viscosity	Used as a fertilizer
Gas oils (petroleum), hydrotreated/light vacuum	Guar liquifier	Baby oil, coolant or thermal fluid, wood conditioner
Fumaric acid	pH buffer	Used to treat psoriasis, and as a flavouring, and to make sourdough and rye bread
Gelatine	Corrosion inhibitor or gelling agent	Used to make jelly
Guar Gum	Gelling agent (thickens fluid to help suspend sand)	Used as a food thickening agent
Hemicellulase Enzyme with/without Sodium Chloride	Breaker used to reduce viscosity (turns a gel into water)	Commercial food processing of coffee
Hydrochloric Acid	Cleaning of the wellbore prior to fracking	Used to clean swimming pool filters
Hydroxy-Ethyl Cellulose	Gelling agent (thickens fluid to help suspend sand)	Used as a placebo in medical trials
Hydroxy-Propyl Guar	Gelling agent (thickens fluid to help suspend sand)	Refined version of guar - used in food products such as cheese and ice cream
Magnesium silicate hydrate	Gelling agent	Chemically identical to talcum powder
Methanol	Used to reduce surface tension to aid in gas flow	A type of alcohol, can be used in wastewater treatment and as an alternative fuel
Mono ethanol amine	Gelling agent	Used in the manufacture of cosmetics, pharmaceuticals, and emulsifiers
Ethylene Glycol Monobutyl Ether	Mutual solvent	Used in household cleaners, fire fighting foam, and to degrease bowling pins and lanes
Muriatic Acid	Used for cleaning the well bore	Leather tanning and for cleaning
Non-crystalline silica	Proppant (holds open fractures)	Used to make glass
Poly (oxy-1,2-ethanediyl)	Proppant (holds open fractures)	Hair treatments and shampoo
Polydimethylallylammonium chloride	Clay control	Used in waste water treatment
Potassium Carbonate	pH buffer	Commonly used to make soap, wine, glass, dyes, and as a fire suppressant
Potassium Chloride	Clay inhibitor	Table salt substitute
Quaternary Polyamines	Clay control	Used in waste water treatment
Sodium Acetate	pH buffer	Provides the primary flavouring in salt and vinegar potato chips
Sodium Borate	pH buffer	A component in glass, pottery, and detergents
Sodium Bicarbonate	pH buffer	Used in cooking
Sodium Carbonate (Soda Ash)	pH buffer	Used to neutralise acid
Sodium Chloride	Breaker used to reduce viscosity (turns a gel into water)	Table salt
Sodium Hydroxide	pH buffer	Used as a buffer (adjust pH)
Sodium Hypochlorite with/without Sodium Hydroxide	Antiseptic to eliminate bacteria in water	Bleach - used in household cleaning and swimming pools to kill bacteria
Sodium Persulfate	Breaker used to reduce viscosity (turns a gel into water)	Used as a bleach in hair treatments, also as a detergent and soil conditioner
Terpenes/terpenoids/sweet orange oil	Used to reduce surface tension to aid in gas flow	Used in pharmaceuticals, contributes to the flavour of cinnamon, cloves and ginger
Tetakis (hydroxymethyl) Phosphonium Sulfate	Antiseptic to eliminate bacteria in water	Used an antiseptic to eliminate bacteria in water in farming and petroleum
Tetramethyl ammonium chloride	Clay control	A type of salt
Zirconium complex	Crosslinker to increase viscosity	Used as an alloying agent in surgical appliances

Notes:

- * All chemicals used in Australian CSG fracking fluids are listed
- * Fracking fluid mixes vary according to the nature of the task, and only a limited set of the above chemicals are used in any single job
- * List is accurate as at 1 November 2010