



Corporation Commission

Hydraulic Fracturing

House Committee on Energy and Utilities

Doug Louis, Conservation Division Director

January 31, 2012

What is Hydraulic Fracturing and How Does It Work?

- Stimulates a well to increase oil or gas production.
- Each fracture job is engineered to be the most effective and stay in the pay zone.
- Procedure done after the well is drilled, before it is put on pump.
- Water and sand, along with other additives, are mixed then pumped below ground to fracture the producing rock matrix. Water and sand make up 98% of the fluid pumped into the formation; other additives, 2%.
- A proppant is introduced, generally fine grained sand. Fractures are then held open by the sand, allowing the natural gas previously trapped to flow to the wellbore and be collected at the surface.
- “Slick water treatment” is introduced to increase viscosity.
- Flowback fluids empty into tanks or lined pits that are then disposed of properly.

Kansas was the first in the nation, a well frac in Grant County in 1947 by Stanolind Oil Company.

Are Hydraulic Fracture Jobs Performed in Kansas?

- Conventional Wells
 - Vertical wells in sandstones and carbonates
- Coalbed Methane Wells- Southeast Kansas
- Niobrara Chalk Wells- Northwest Kansas
- Horizontal Wells
- Utilized in saltwater disposal wells for increased disposal
- Increase enhanced oil recovery performance
- Used in gas storage wells to increase deliverability

Kansas Hydraulic Frac Jobs

(in vertical wells)

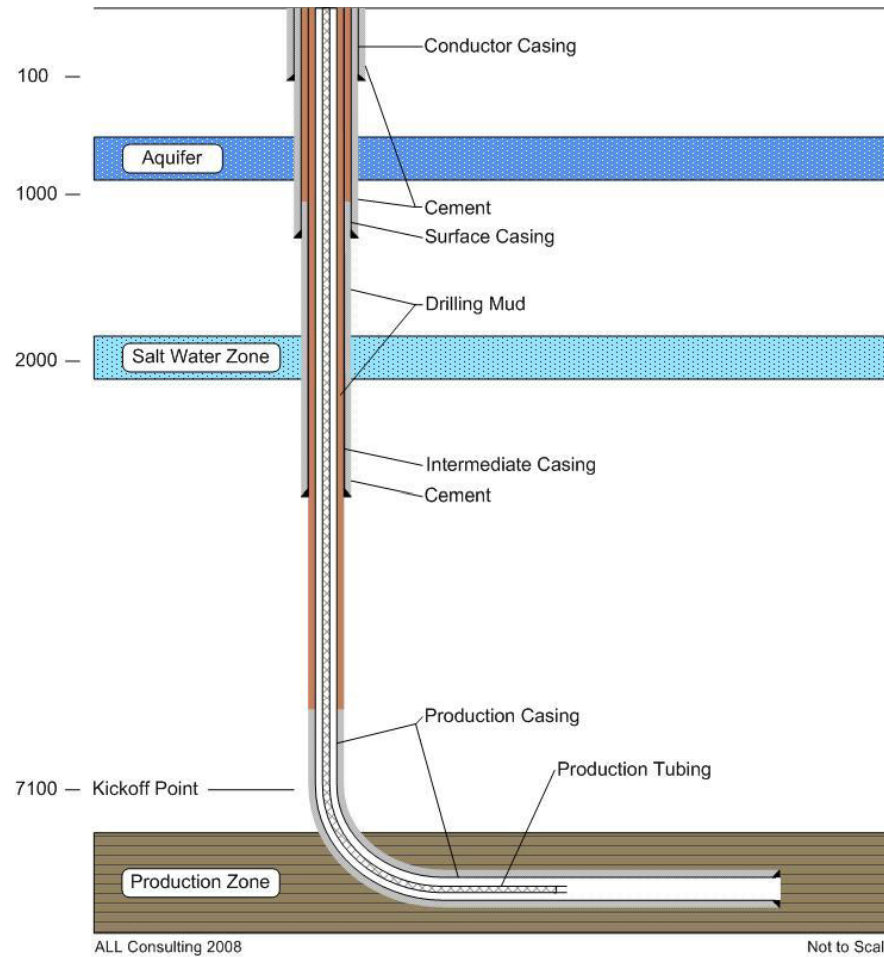
KANSAS LOCATION	FORMATION	DEPTH (ft)	TOTAL FLUID VOLUME (bbl)	PRESSURE APPLIED (psi)
Southwest Kansas	Lansing Kansas City, Mississippian, Morrow Sand	2500-6900	500-50000	1000-1500
Northwest Kansas	Niobrara,	1350-1500	2700-3600	900
	Marmaton,	3700-3900	2700-3600	2500-3500
	Tarkio	2200-2500	2700-3600/4000-5000	2700-3600
Southwest Kansas	Cherokee sands, Mississippi, Simpson, Hutton	300-3000	200	300-1000
Southwest Kansas	Cherokee coals	600-1200	350-400 (per stage/coal formation)	600-1500

Who Regulates Hydraulic Fracturing in Kansas and How?

By regulating the oil and gas exploration industry since the 1930's the KCC has developed sound regulations to protect surface water, groundwater and correlative rights. The 85 full-time employees (geologists, engineers, technical staff, attorneys and field inspectors) who work in the Conservation Division enforce these regulations by witnessing, inspecting and permitting drilling, well-completion and production throughout the state.

- Surface pipe regulations
- Production casing regulations
- Well-cementing requirements
- Intent-to-drill process
- Well spacing requirements
- Pit permitting process
- Well completion reporting requirements
- Permit injection wells used for disposal of flowback water

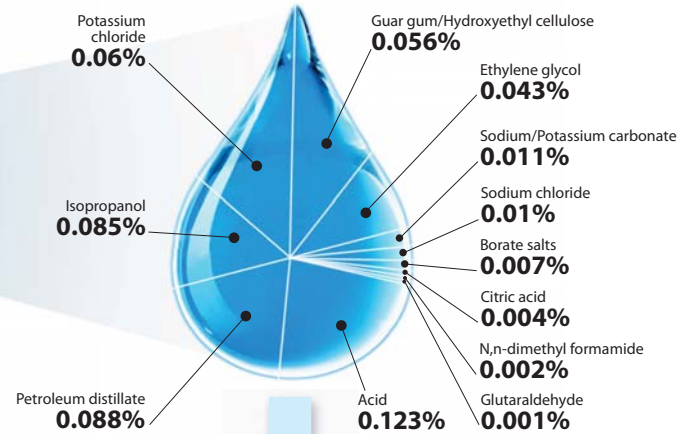
Hydraulic Fracture Job in a Horizontal Well



Source: ALL Consulting, LLC

A FLUID SITUATION: TYPICAL SOLUTION* USED IN HYDRAULIC FRACTURING

**0.49%
ADDITIVES***



On average, **99.5%** of fracturing fluids are comprised of freshwater and compounds are injected into deep shale gas formations and are typically confined by many thousands of feet or rock layers.

Source: DOE, GWPC: Modern Gas Shale Development In the United States: A Primer (2009)

Compound*	Purpose	Common application
Acids	Helps dissolve minerals and initiate fissure in rock (pre-fracture)	Swimming pool cleaner
Glutaraldehyde	Eliminates bacteria in the water	Disinfectant; Sterilizer for medical and dental equipment
Sodium Chloride	Allows a delayed break down of the gel polymer chains	Table Salt
N, n-Dimethyl formamide	Prevents the corrosion of the pipe	Used in pharmaceuticals, acrylic fibers and plastics
Borate salts	Maintains fluid viscosity as temperature increases	Used in laundry detergents, hand soaps and cosmetics
Polyacrylamide	Minimizes friction between fluid and pipe	Water treatment, soil conditioner
Petroleum distillates	"Slicks" the water to minimize friction	Make-up remover, laxatives, and candy
Guar gum	Thickens the water to suspend the sand	Thickener used in cosmetics, baked goods, ice cream, tooth-paste, sauces, and salad dressing
Citric Acid	Prevents precipitation of metal oxides	Food additive; food and beverages; lemon juice
Potassium chloride	Creates a brine carrier fluid	Low sodium table salt substitute
Ammonium bisulfite	Removes oxygen from the water to protect the pipe from corrosion	Cosmetics, food and beverage processing, water treatment
Sodium or potassium carbonate	Maintains the effectiveness of other components, such as crosslinkers	Washing soda, detergents, soap, water softener, glass and ceramics
Proppant	Allows the fissures to remain open so the gas can escape	Drinking water filtration, play sand
Ethylene glycol	Prevents scale deposits in the pipe	Automotive antifreeze, household cleansers, deicing, and caulk
Isopropanol	Used to increase the viscosity of the fracture fluid	Glass cleaner, antiperspirant, and hair color

*The specific compounds used in a given fracturing operation will vary depending on source water quality and site, and specific characteristics of the target formation. The compounds listed above are representative of the major material components used in the hydraulic fracturing of natural gas shales. Compositions are approximate.

The screenshot shows a Windows Internet Explorer browser window displaying the FracFocus Chemical Disclosure Registry website. The browser's address bar shows the URL <http://fracfocus.org/>. The website's navigation menu includes links for Home, About Us, Publications, News & Updates, Links, and Register A Reporting Company. The main content area features the FracFocus logo and several menu items: HYDRAULIC FRACTURING (HOW IT WORKS), GROUNDWATER PROTECTION, CHEMICAL USE, REGULATIONS BY STATE, FIND A WELL BY STATE, and FREQUENT QUESTIONS. A large banner with the word "WELCOME" in blue letters is prominent. Below it, a text block reads: "Welcome to FracFocus, the hydraulic fracturing chemical registry website. This website is a joint project of the Ground Water Protection Council and the Interstate Oil and Gas Compact Commission. On this site you can search for information about the chemicals used in the hydraulic fracturing of oil and gas wells. You will also find educational materials designed to help you put this information in perspective." A "LEARN MORE" button with a right-pointing arrow is located below this text. To the right, a section titled "Looking for information about a well site near you?" features a map of the United States with a "FIND A WELL" button overlaid. Below the map, it says: "Search for nearby well sites that have been hydraulically fractured to see what chemicals were used in the process." The Windows taskbar at the bottom shows the Start button, several open applications (Microsoft Office, a document, and the FracFocus page), and the system tray with the time 2:35 PM.

Operator Name	Upload Count	Operator Name	Upload Count	Operator Name	Upload Count
Anadarko Petroleum Corporation	1317	EQT Production	50	Petrohawk Energy Corporation	99
Anschutz Exploration Corporation	3	EXCO Resources, Inc.	95	Pioneer Natural Resources	636
Antero Resources Corporation	0	Fidelity Exploration & Production	0	Plains Exploration & Production Company	53
Apache Corporation	182	Finley Resources, Inc.	1	Platinum Energy Solutions	0
Aruba Petroleum, Inc.	0	Forest Oil Corporation	17	Premier Natural Resources II, LLC	0
Atlas Energy, L.P.	0	G3 Operating, LLC.	1	PRIMA EXPLORATION INC.	0
BHP Billiton Petroleum (Fayetteville) LLC.	9	Goodrich Petroleum Company, LLC	3	QEP Energy Company	77
Bill Barrett Corp	56	Gunnison Energy Corporation	0	Quantum Resources Management, LLC	0
Black Diamond Minerals LLC	6	Henry Resources LLC	1	Quest Energy Management Group, Inc.	0
Black Hills Exploration and Production	1	Hess Corporation	20	Range Resources Corporation	108
Bonanza Creek Energy, Inc.	0	HighMount Exploration & Production	42	Reliance Energy, Inc	0
BP America Production Company	112	HRM Resources, LLC	0	Rex Energy	19
Brammer Engineering, Inc.	0	Hunt Oil Company	0	Rosetta Resources	15
Burnett Oil Co., Inc.	4	Indigo II Louisiana Operating, LLC	1	Rosewood Resources	0
Cabot Oil & Gas Corp	90	Indigo Minerals	2	Samson	17
Chesapeake Operating, Inc.	1225	J CLEO THOMPSON	0	Samson Exploration, LLC	0
Chevron USA Inc.	311	J-W Operating Company	25	SandRidge Energy	47
Cheyenne Petroleum Company	0	K.P. Kauffman Company	0	Seneca Resources Corporation	32
Chief Oil & Gas	38	Laredo Petroleum, Inc.	66	Shell Exploration & Production Company	233
Citrus Energy Corporation	0	Legend Natural Gas, LLC	0	Slawson Exploration Company, Inc.	1
Comstock Oil & Gas	9	Linn Energy, LLC	25	SM Energy	86
ConocoPhillips Company	265	Marathon Oil	134	Southwestern Energy	512
CONSOL Energy Inc.	39	McElvain Energy, Inc.	0	Swift Energy Operating, LLC	0
Continental Resources, Inc	18	Mesa Energy Partners, LLC	1	Talisman Energy USA Inc.	151
Cordillera Energy Partners, III	0	MEWBOURNE OIL COMPANY	0	Tenaska Resources, LLC	0
Denali Oil & Gas Management	0	Newfield Exploration	189	Titan Operating, LLC	17
Devon Energy Production Company L. P.	418	Noble Energy, Inc.	414	Triana Energy	0
El Paso E&P Company	131	Occidental Oil and Gas	172	Ultra Resources	96
Encana Oil & Gas (USA) Inc.	291	Patara Oil & Gas, LLC	8	Ward Petroleum	5
Energen Resources Corporation	231	PDC Energy	36	Whiting Petroleum	54
Energy Corporation of America	28	Penn Virginia Oil & Gas Corporation	25	Woolsey Operating Co. LLC	2
Enerplus Resources (USA) Corp.	0	Pennsylvania General Energy	3	WPX Energy	432
EnerVest, Ltd.	31	Peregrine Petroleum	0	XTO Energy/ExxonMobil	894
EOG Resources, Inc.	432				

Participating companies = 115 / Reporting companies = 69
 Wells reported = 10,160
 Website visits = 138,270/Unique visitors = 96,874

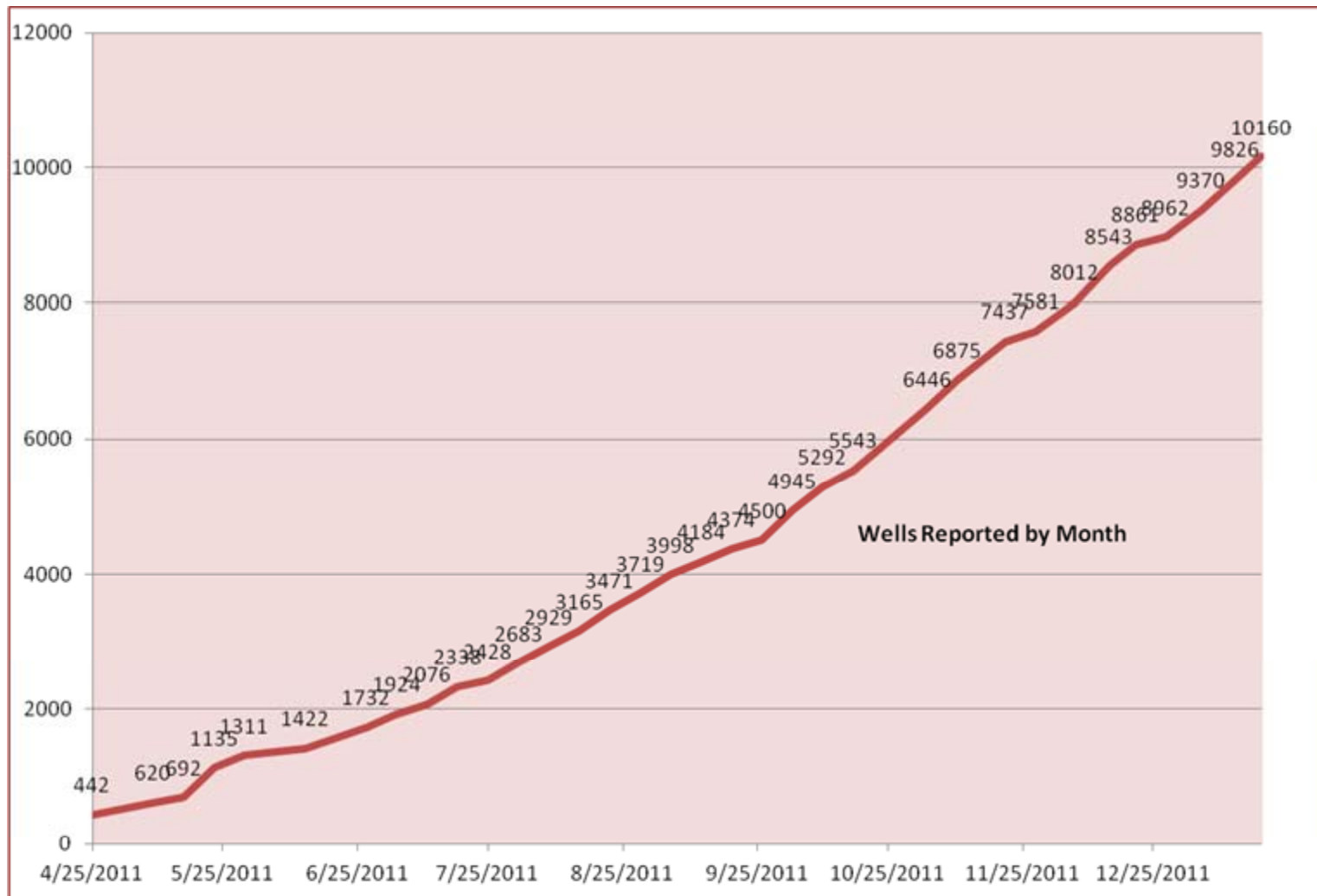
SOURCE: Mike Nickolaus,
 PG Special Projects Director GWPC

Companies Growth Chart



SOURCE: Mike Nickolaus, PG Special Projects Director GWPC

Wells Reported Growth Chart



SOURCE: Mike Nickolaus, PG Special Projects Director GWPC

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	10/11/2011
State:	KANSAS
County:	COMANCHE
API Number:	1503321591
Operator Name:	CHESAPEAKE
Well Name and Number:	YORK 31-31-17 1H
Longitude:	-99.2162
Latitude:	37.296368
Long/Lat Projection:	NAD27
Production Type:	OIL
True Vertical Depth (TVD):	N/A
Total Water Volume (gal)*:	858,480

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by Mass)**	Maximum Ingredient Concentration in HF Fluid (% by Mass)**	Comments
Fresh Water		Carrier/Base Fluid				88.70066%	
Ottawa Sand		Proppant	Crystalline Silica (Quartz Sand, Silicon Dioxide)	014808-60-7	100.00%	4.73471%	
White Sand		Proppant	Crystalline Silica (Quartz Sand, Silicon Dioxide)	014808-60-7	100.00%	3.39061%	
15% HCl Acid	BASIC ENERGY SERVICES	Acid	Water	007732-18-5	85.00%	2.37126%	
			Hydrochloric Acid	007647-01-0	15.00%	0.41846%	
I-6L	BASIC ENERGY SERVICES	Iron Control Agent	Acetic acid	000064-19-7	85.00%	0.01397%	
			Methanol (Methyl Alcohol)	000067-56-1	5.00%	0.00082%	
CIA- LT166	BASIC ENERGY SERVICES	Corrosion Inhibitor	Methanol (Methyl Alcohol)	000067-56-1	50.00%	0.00215%	
			Propargyl Alcohol (2-Propynol)	000107-19-7	4.00%	0.00017%	
ALPHA 1427	BAKER HUGHES	Anti-Bacterial Agent	Water	007732-18-5	60.00%	0.00601%	
			Glutaraldehyde (Pentanediol)	000111-30-8	30.00%	0.00301%	
			Didecyl Dimethyl Ammonium Chloride	007173-51-5	10.00%	0.00100%	
			Quaternary Ammonium Compound	068424-85-1	7.00%	0.00070%	
			Ethanol	000064-17-5	5.00%	0.00050%	
WGA-1E SLR	BASIC ENERGY SERVICES	Gelling Agent	Petroleum Distillate Hydrotreated Light	064742-47-8	70.00%	0.08676%	
CC - 11 KCl	BASIC ENERGY	Clay Stabilizer	Methanol (Methyl Alcohol)	000067-56-1	100.00%	0.07189%	12

	SERVICES						
S-10	BASIC ENERGY SERVICES	Surfactant	2-Butoxyethanol (Ethylene Glycol Monobutyl Ether)	000111-76-2	100.00%	0.03696%	
			Methanol (Methyl Alcohol)	000067-56-1	100.00%	0.03696%	
FR-947	BASIC ENERGY SERVICES	Friction Reducer	Petroleum Distillate Hydrotreated Light	064742-47-8	30.00%	0.02593%	
BXL-2L	BASIC ENERGY SERVICES	Cross Linker	Sodium Metaborate Tetrahydrate	035585-58-1	30.00%	0.00719%	
			Ethylene Glycol	000107-21-1	10.00%	0.00240%	
			Sodium Hydroxide	001310-73-2	10.00%	0.00240%	
NE - 140	BASIC ENERGY SERVICES	Non-Emulsifier	Methanol (Methyl Alcohol)	000067-56-1	30.00%	0.00073%	
Breaker -10L	BASIC ENERGY SERVICES	Breaker	No Hazardous Components	NONE		0.00000%	

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

All component information listed was obtained from the supplier's Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration's (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary", "trade secret", and "confidential business information" and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.

MATERIAL SAFETY DATA SHEET

Revision #: 01

Section 1 - Product Identification & Use

Product Name: **Muriatic Acid 10.4%**
 WHMIS Classification: Class E, Corrosive Liquids
 TDG Classification: Hydrochloric Acid Solutions
 UN 1789, Class 8, II
 Supplier: Advance Chemicals Ltd.
 2023 Kingsway Avenue
 Port Coquitlam, B.C. V3C 1S9
 Phone: (604) 945-9666
 Fax: (604) 945-9617
 Emergency phone: CANUTEC 24 hrs. (613) 996-6666

Section 2 - Hazardous Ingredients

Hazardous Components	%(w/w)	C.A.S. No.	LD ₅₀ & LC ₅₀
Hydrochloric Acid	7-13	7647-01-0	oral, rabbit 900mg/kg

Section 3 - Physical Data

Physical state: liquid
 Boiling point: 80-82°C
 Liquid density: 1.16g/mL
 Freezing point: no data.
 pH: 3% solution 0.2@ 20°C
 Solubility in water: 100%
 Vapour pressure: 25mmHg @ 20°C
 Evaporation rate: no data
Odour & Appearance: Clear, colourless liquid solution. There is an obvious sharp acidic odour above the open liquid.

Section 4 - Fire or Explosion Hazard

Flammability: The product is not considered to be flammable.
Extinguishing media: Use an extinguishing media for surrounding the fire, or all purpose foam by manufacturer's recommended techniques for large fires. Use water to cool fire exposed containers to prevent vapour build-up and rupture. Water may also be used to flush spills away from dangerous exposures.
Hazardous Combustion Products: Wear self-contained breathing apparatus. Product reacts with most metals to produce hydrogen gas, which may accumulate to produce explosive and/or flammable mixtures with air.

Section 5 - Reactivity Data

Stability: Stable.
Incompatible substances: Metals, caustics, sulphides, cyanides, fluorides, carbides, silicates and strong oxidizing agents.
Polymerization: Will not occur.
Conditions to Avoid: Contact with metals produces hydrogen gas, which can form flammable or explosive mixtures in air. Will generate heat when mixed with alkalis. Reaction with sulphides, phosphides, cyanides, acetylides, fluorides, silicides, and carbides, releases flammable and/or poisonous gasses. May spatter upon contact with water.
Hazardous Combustion Products: Wear self-contained breathing apparatus. This product is not considered flammable, but heat may cause decomposition resulting in the production of hydrogen gas, which can form flammable or explosive mixtures.

Section 6 - Toxicological Properties

Acute Toxicity: No data found.
Skin contact: Burning, inflammation, blisters.
Eye contact: Burning, watering.
Inhalation: Irritation of mucous membranes, watering of eyes, difficulty breathing, salivation, nausea.
Ingestion: Pain in swallowing, intense thirst, abdominal pain, nausea, may be fatal if swallowed.

Section 7 - Preventative Measures

Personal Protective Equipment: Avoid contact with skin and eyes. Wear chemical protective gloves, goggles and face shield, rubber apron and boots. Eye wash fountains and safety shower facilities should be provided nearby for emergency use.
Respiratory protection: For acid vapours and mist, use an NIOSH/MSHA approved air purifying, dust, mist and particulate respirator.
Ventilation Requirements: This product should be used in a well-ventilated area at all times. If the hydrochloric acid solution is to be heated or a mist will be generated during product application, then local exhaust ventilation will be necessary.
Action to take for spills & leaks: Wear chemical protective clothing, rubber gloves and suitable respiratory protection. Small spills should be wiped up with absorbent material and disposed of in government approved waste containers. The spilled product can be neutralized with soda ash or baking soda and wet down with a little water to form a slurry. The spill area may then be flushed with large

quantities of water. Larger spills should be contained by diking with sand, soil or other absorbent, non-combustible material, then transferred into approved waste containers for proper disposal. Keep product out of sewers, storm drains, surface run-off water and soil. Restrict access to non-protected personnel. Comply with all government regulations on spill reporting, handling and disposal of waste.

Disposal methods: Dispose of contaminated product and materials used in cleaning up spills or leaks in a manner approved for this material. Consult appropriate federal, provincial and local regulatory agencies to ascertain proper disposal procedures.

Note: Empty containers can have residues, gasses and mists, and are subject to proper waste disposal as mentioned above.

Storage & Handling Precautions: Warning, harmful or fatal if swallowed. Causes eye, skin and respiratory irritation. Avoid contact with eyes and repeated contact with skin and clothing. Do not ingest. Keep away from sources of heat and open flame. Keep container tightly closed when not in use. Store upright in a cool, dry, well-ventilated place away from incompatible materials. Do not use pressure to empty container. Wash thoroughly after handling. Use with adequate ventilation. Tanks must be grounded and ventilated. Ensure proper electrical grounding procedures are in place during product transfer.

Repair and Maintenance Precautions: Do not cut, grind, weld or drill in, on or near this container.

Section 8 - First Aid Measures

If inhaled: Remove victim to fresh air. Give artificial respiration if not breathing. Get immediate emergency medical attention.

In case of eye contact: Immediately flush eyes with clean water for at least twenty (20) minutes, lifting the upper and lower eyelids occasionally. Get immediate emergency medical attention. Do not transport victim until the recommended flushing period has been completed, unless eye flushing can be continued during transport to the nearest emergency medical treatment facility.

In case of skin contact: Immediately flush skin with plenty of clean running water for at least fifteen (15) minutes. Remove contaminated clothing and shoes. If irritation persists after washing, get immediate medical attention. Wash clothes before re-use.

In case of ingestion or swallowing: If victim is conscious and not convulsing, give one or two glasses of water to dilute material. Immediately contact the local poison control centre. Vomiting should only be induced under the direction of a physician or poison control centre. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in the vomitus. Rinse mouth and administer more water. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS VICTIM. GET IMMEDIATE EMERGENCY MEDICAL ATTENTION.

Section 9 - Preparation Information

Advance Chemicals Limited expressly disclaims all expressed or implied warranties of merchantability and fitness for a particular purpose with respect to the product provided. The information contained herein is offered only as a guide to the handling of this specific product, and has been prepared in good faith by technically knowledgeable personnel. This M.S.D.S. is not intended to be all-inclusive, and the manner and conditions of use may involve other and additional considerations.

Prepared: 17 January 2007
 Revised: 09 February 2007

OSHA/EPA Occupational Chemical Database

Chemical Identification

Chemical Name: HYDROGEN CHLORIDE

CAS #: 7647-01-0

UN No: 1789

Formula: ClH

Synonyms: Anhydrous hydrogen chloride; Aqueous hydrogen chloride (i.e., Hydrochloric acid, Muriatic acid)

Physical Properties

Physical Description: Colorless to slightly yellow gas with a pungent, irritating odor. [Note: Shipped as a liquefied compressed gas.]

BP: -121°F	MW: 36.5	LEL: NA	NFPA Fire Rating: 0
FRZ/MLT: FRZ: -174°F	VP: 40.5 atm	UEL: NA	NFPA Health Rating: 3
FP: NA	VD: 1.27		NFPA Reactivity Rating: 0
Sp. GR: NA	IP: 12.74 eV		NFPA Sp. Inst.: NA

Exposure Limits

OSHA	NIOSH	Related Information
PEL-TWA ppm: NA	REL-TWA ppm: NA	AIHA Emergency Response Planning Guidelines - ERPG-1/ERPG-2/ERPG-3: 3 ppm/20 ppm/150 ppm
PEL-TWA mg/m3: NA	REL-TWA mg/m3: NA	
PEL-STEL ppm: NA	REL-STEL ppm: NA	
PEL-STEL mg/m3: NA	REL-STEL mg/m3: NA	
PEL-C ppm: 5	REL-C ppm: 5	Carcinogen Classifications: IARC-3, TLV-A4
PEL-C mg/m3: 7	REL-C mg/m3: 7	
Skin Notation: No	Skin Notation: No	
Notes: NA	Notes: NA	
	IDLH ppm: 50	
	IDLH mg/m3: NA	
	IDLH Notes: NA	

OSHA/EPA Occupational Chemical Database (continued)

NIOSH Pocket Guide to Chemical Hazards (Current through June 2006)			
Hydrogen chloride		CAS: 7647-01-0	
Formula: HCl		RTECS: MW4025000	
Synonyms & Trade Names: Anhydrous hydrogen chloride; Aqueous hydrogen chloride (i.e., Hydrochloric acid, Muriatic acid)		DOT ID & Guide: 1050 125 (anhydrous) 1789 157 (solution)	
Exposure Limits			
NIOSH REL: C 5 ppm (7 mg/m ³)		OSHA PEL: C 5 ppm (7 mg/m ³)	
IDLH: 50 ppm		Conversion: 1 ppm = 1.49 mg/m ³	
Physical Description			
Colorless to slightly yellow gas with a pungent, irritating odor. [Note: Shipped as a liquefied compressed gas.]			
MW: 36.5	BP: -121F	FRZ: -174F	Sol(86F): 67%
VP: 40.5 atm	IP: 12.74 eV	RGasD: 1.27	NA
F.P.: NA	UEL: NA	LEL: NA	NA
Nonflammable Gas (See flammable and combustible liquid classes)			
Incompatibilities & Reactivities			
Hydroxides, amines, alkalis, copper, brass, zinc [Note: Hydrochloric acid is highly corrosive to mos			
Measurement Methods			
NIOSH 7903; OSHA ID174SG			
Personal Protection & Sanitation		First Aid	
Skin: Prevent skin contact (solution)/Frostbite Eyes: Prevent eye contact/Frostbite Wash skin:		Eye: Irr immed (solution)/Frostbite Skin: Water flush immed (solution)/Frostbite Breath: Resp (See procedures)	
NIOSH Respirator Recommendations			
NIOSH/OSHA 50 ppm: CCRS*/GMFS/PAPRS*/SA*/SCBAF : SCBAF:PD,PP/SAF:PD,PP:ASCBA Escape: GMFAG/SCBAE (See symbols and codes)			
Exposure Routes			
Inh Ing (solution) Con			
Symptoms			
Irrit nose, throat, larynx; cough, choking; derm; solution: eye, skin burns; liquid: frostbite; in a (See abbreviations)			
Target Organs			
Eyes, skin, resp sys (See abbreviations)			

OSHA/EPA Occupational Chemical Database (continued)

DOT Emergency Response Guidebook (ERG 2004)			
Guide Number: 157 157 SUBSTANCES - TOXIC and/or CORROSIVE (Non-Combustible / Water-Sensitive) POTENTIAL HAZ NA			
ERG 2004 Isolation and Protective Distances			
	SMALL SPILLS (From a small package or small leak from a large pkg.) First Then ISOLATE PROTECT in all persons Downwind Downwind Directions during- NIGHT DAY NIGHT NIGHT	LARGE SPILLS (From a large package or from many small packages) First Then ISOLATE PROTECT in all persons Directions during- DAY	
NA	NA		
ERG 2004 Toxic-by-Inhalation (TIH) Gas(es) Produced When Spilled in Water			
TIH: NA			

Additional Emergency Response Information (CAMEO Data)
Non-fire Spill Response: Neutralizing Agents for Acids and Caustics: Flush with water; apply powdered limestone, slaked lime, soda ash, or sodium bicarbonate. (USCG, 1999)
Firefighting:
Reactivity: CHEMICAL PROFILE: Calcium phosphide and hydrochloric acid undergo a very energetic reaction, Mellor
First Aid: INHALATION: remove person to fresh air; keep him warm and quiet and get medical attention immediately; start artificial respiration if breathing stops. INGESTION: have person drink water or milk; do NOT induce vomiting. EYES: immediately flush with plenty of water for at least 15 min. and get medical attention; continue flushing for another 15 min. if physician does not arrive promptly. SKIN: immediately flush skin while removing contaminated clothing; get medical attention promptly; use soap and wash area for at least 15 min. (USCG, 1999)

FracFocus Strengths

- Created and maintained by credible sources (GWPC and IOGCC)
- Educational website
- Links to State's regulations
- Component disclosure in a standard and easy-to-read format
- Recognized in a DOE report by a Shale Gas Production Subcommittee dated 11-18-2011

FracFocus Weaknesses

- It has limited searchability
- It does not perform quality control- this is left to the companies supplying the information
- It does not answer the question “At what level a component can or should be held as a trade secret?”
- I am unsure at what level it can be maintained (GWPC receives federal and private industry funding)

What is Happening on the National Level?

- The U.S. Environmental Protection Agency (EPA) is beginning an expansive new three-year study, including water quantity and water handling, issues which conflict with State's jurisdiction. The conflict was recognized in Kansas House Resolution on Hydraulic Fracturing. The EPA's published timeline states it will issue interim results by the end of 2012 with a final report to follow in 2014.
- The Interstate Oil & Gas Compact Commission (IOGCC) and the Ground Water Protection Council (GWPC) voiced opposition to the EPA study saying a comprehensive study was done in 2004. The study concluded injection of hydraulic fracturing fluids poses little or no threat to underground sources of drinking water. The two groups argue the states are doing an adequate job as there have been no recorded cases of contamination from fracing.
- IOGCC and GWPC have developed a chemical reporting web portal called FracFocus.

What Are Other States Doing?

- Wyoming and Arkansas passed regulations which require the reporting of the chemical components.
- Oklahoma re-arranged its regulations to form a separate hydraulic fracturing section.
- Alabama, Oklahoma, Wyoming and Louisiana legislatures have passed hydraulic fracturing resolutions, generally stating hydraulic fracturing is beneficial.
- Texas, Montana, Louisiana, and Colorado require the use of FracFocus as a disclosure registry.
- New Mexico and Oklahoma are looking at using FracFocus.

Related Kansas Legislation

- It is unclear, and likely improbable, the KCC has statutory authority to write regulations requiring operators to use FracFocus.
- As the KCC has no authority to regulate or license hydraulic fracture fluid vendors, it would not be possible to require trade secret disclosure without a statutory change.

**Kansas Corporation Commission
Conservation Division**

<http://kcc.ks.gov>

Doug Louis
Conservation Division Director

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