

OVERVIEW USED PRODUCTS, Kollumerpomp (KMP-4), 02 May 2014

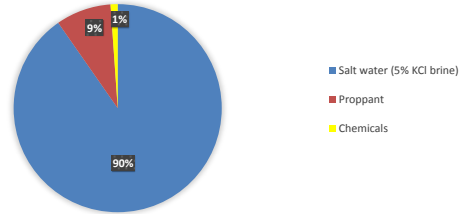
Final list (with used products and actual weights/percentages)

Products	Use	Product Weight (kg)	Product Weight (%)	Ingredient	Ingredient CAS number	Ingredient % *	Product Classification [#]
Salt water (5% KCl brine)	Carrier	458115,00	90,316	Non-hazardous ingredients		100	none
Resin coated ceramic proppant	Proppant	43536,00	8,583	Non-hazardous ingredients		100	none
GW-4AFG	Gellant	1285,00	0,253	Non-hazardous ingredients		100	none
BioBase 637	Liquid frac concentrate component	1374,00	0,271	Hydrocarbons C14-C17, n-alkanes, <2% aromatics	917-828-1	100	Xn;R65,R66
				Hydrocarbons C10-C14, n-alkanes, <2% aromatics	920-274-3	30	
BF-1	Buffer	48,00	0,009	Non-hazardous ingredients		100	none
PSA-3	Suspending Agent	32,00	0,006	Non-hazardous ingredients		100	Carc cat 1A;R49
				Crystalline Silica Quartz	14808-60-7/238-878-4	5	
D-4G	Surfactant	11,20	0,002	Non-hazardous ingredients		100	Xn;R22, Xi;R41
				Alcohols, C9-11-iso-, C-10-rich, ethoxylated	78330-20-8	100	
Grotan OX	Biocide	16,00	0,003	3,3'-Methylenebis[5-methoxyazolidine]	66204-44-2/266-235-8	100	R20/22, C;R34, R52
GS-1	Gel Stabilizer	130,00	0,026	Non-hazardous ingredients		100	none
BF-7L	Buffer	795,00	0,157	Non-hazardous ingredients		100	Xi;R36/37/38
XLW-30G	Crosslinker	383,40	0,076	Potassium Carbonate	584-08-7/209-529-3	60	Xn;R22, Xi;R36/37/38
				Non-hazardous ingredients		100	
				Sodium Bisulphate	7681-38-1/231-665-7	0,1	
				Sodium Chloride	7647-14-5/231-598-3	0,1	
				Crystalline Silica Quartz	14808-60-7/238-878-4	0,1	
Enzyme G-I	Breaker	1125,00	0,222	Non-hazardous ingredients		100	none
GBW-5	Breaker	10,50	0,002	Non-hazardous ingredients		100	O;R8, Xn;R22, Xi;R36/37/38, R42/43
				Diammonium Peroxodisulphate	7727-54-0/231-786-5	100	
Flo-Back 30	Surfactant	376,20	0,074	1-Propanaminium, 3-amino-N-(carboxymethyl)-N,N-dimethyl-, N-coco acyl derivs., hydroxides, inner salts	61789-40-0/263-058-8	100	Xi;R36/38
TOTALS		507237,3	100,000				

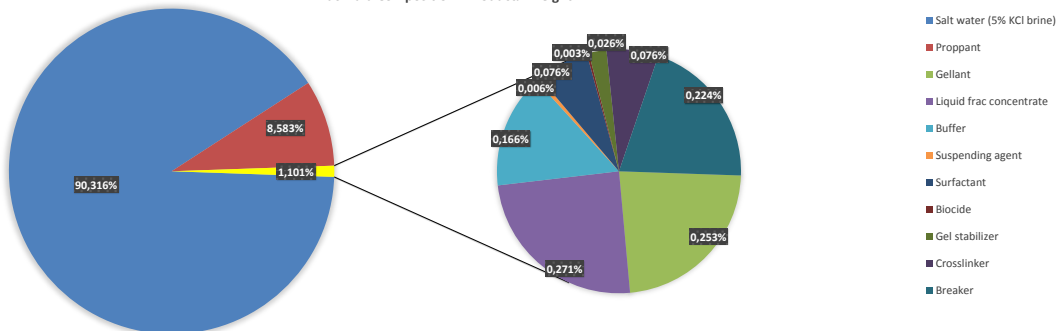
Contingency chemicals	Use	Contingency product Weight (kg)	Contingency product Weight (%)	Ingredient	Ingredient CAS number	Ingredient % *	Product Classification [#]
Xanvis L(X)	Viscosifier contingency	0,00	0,000	Non-hazardous ingredients		100	none
FP-16LG	Defoamer	0,00	0,000	Ethanol	64-17-5/200-578-6	10	Xn;R65/66, Xi;R36
				Hydrocarbons C14-C17, n-alkanes, <2% aromatics	917-828-1	100	
				Hydrocarbons C10-C14, n-alkanes, <2% aromatics	920-274-3	30	
				2-(2-butoxyethoxy)ethanol	112-34-5/203-961-6	5	
Liquid Nitrogen	Stored nitrogen gas	34460,00	100,000	Nitrogen		100	none
Citric Acid	pH control	0,00	0,000	Citric acid	77-92-9/201-069-1	100	Xi;R36
Sodium Carbonate (Soda Ash)	pH control	0,00	0,000	Sodium Carbonate	497-19-8/207-838-8	100	Xi;R36
Nitrogen Gas	Liquid lifting	0,00	0,000	Nitrogen		100	none
Methanol	Solvent	0,00	0,000	Methanol	67-56-1/200-659-6	100	F;R11, T;R23/24/25, R39
Propane	Liquid lifting	0,00	0,000	Non-hazardous ingredients		100	none
TOTALS		34460	100,000				

Summary	Product Weight (kg)	Product Weight (%)
Salt water (5% KCl brine)	458115,00	90,316
Proppant	43536,00	8,583
Chemicals	5586,30	1,101
specified below:		
Gellant	0,253	
Liquid frac concentrate	0,271	
Buffer	0,166	
Suspending agent	0,006	
Surfactant	0,076	
Biocide	0,003	
Gel stabilizer	0,026	
Crosslinker	0,076	
Breaker	0,224	
Total	507237,30	100,000

Frac Fluid Composition - Product% weight



Frac Fluid Composition - Product% weight



* Total percentage of composition might not equal 100% - exceedance of 100% is possible because maximum concentrations of hazardous chemicals are included if ranges are given in MSDS, totals lower than 100% are possible because non-hazardous solvents (i.e. water) are not included in the composition
[#] Classification according to Dutch law at time of execution, explanation about the danger symbols or the R-sentences can be found on Wikipedia (https://en.wikipedia.org/wiki/European_hazard_symbols resp. https://en.wikipedia.org/wiki/List_of_R-phrases)