

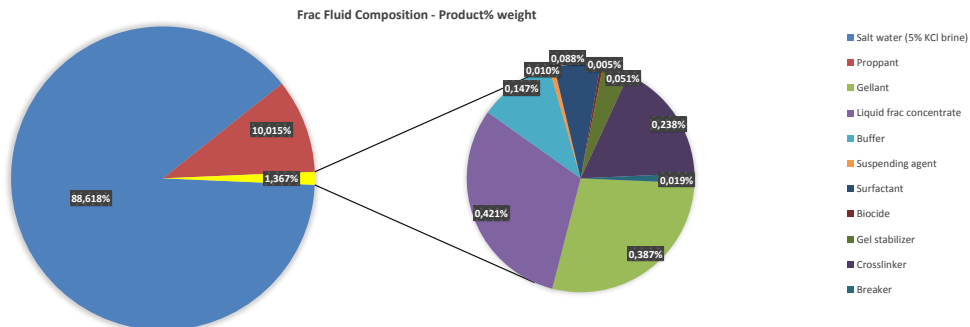
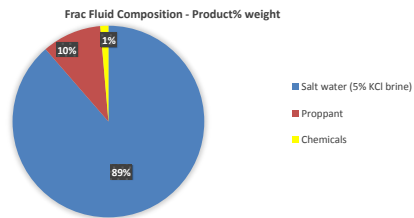
OVERVIEW USED PRODUCTS, Lauwerzijl (LWZ-3), 07 Dec 2012

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	211173,90	88,618				none
Optiprop G2	Proppant	23865,00	10,015	Non-hazardous ingredients			100
GW-4AFG	Gellant	923,00	0,387	Non-hazardous ingredients			100
BioBase 637	Liquid frac concentrate component	1003,60	0,421	Guar Gum			9000-30-0/232-536-8
BF-1	Buffer	35,00	0,015	Paraffins (petroleum), normal C5-C20			64771-72-8/265-233-4
PSA-3	Suspending Agent	23,00	0,010	Alkenes C-8			68411-00-7/270-095-3
D-4G	Surfactant	8,00	0,003	Non-hazardous ingredients			100
XC82448	Biocide	12,50	0,005	3,6,9,12,15,18,21,24-octaoxatetracontan-1-ol			24233-81-6
				Tetrakis(hydroxymethyl) Phosphonium Sulfate			55566-30-8/259-709-0
				1,2-Ethanediamine, N,N,N',N'-tetramethyl-, polymer with 1,1'-oxybis(2-chloroethane)			31075-24-8
GS-1	Gel Stabilizer	122,00	0,051	Non-hazardous ingredients			100
BF-7L	Buffer	314,80	0,132	Potassium Carbonate			584-08-7/209-529-3
Fracal Ultra	Crosslinker	566,80	0,238	Non-hazardous ingredients			100
				Sodium Bisulphate			7681-38-1/231-665-7
				Sodium Chloride			7647-14-5/231-598-3
				Crystalline Silica Quartz			14808-60-7/238-878-4
GBW-24	Breaker	36,00	0,015	Calcium Peroxide			1305-79-9/215-139-4
				Calcium Hydroxide			1305-62-0/215-137-3
				Calcium Carbonate			1317-65-3/207-439-9
GBW-5	Breaker	9,50	0,004	Diammonium Peroxodisulphate			7727-54-0/231-786-5
Flo-Back 30	Surfactant	202,80	0,085	1-Propanaminium, 3-amino-N-(carboxymethyl)-N,N-dimethyl-, N- coco acyl derivs., hydroxides, inner salts			61789-40-0/263-058-8
TOTALS		238295,9	100,000				

Contingency chemicals	Use	Contingency product Weight (kg)	Contingency product Weight (%)	Ingredient	Ingredient CAS number	Ingredient % *	Product Classification [†]
Ferrotrol 300	Iron Control contingency	0,00	0,000	Citric acid			77-92-9/201-069-1
Xanvis L(X)	Viscosifier contingency	0,00	0,000	Non-hazardous ingredients			100
FP-16LG	Defoamer	0,00	0,000	Ethanol			64-17-5/200-578-6
				Paraffins (petroleum) normal C5-20			64771-72-8/265-233-4
				Alkenes C-8			68411-00-7/270-095-3
				2-(2-butoxyethoxy)ethanol			112-34-5/203-961-6
Liquid Nitrogen	Stored nitrogen gas	16677,10	99,892	Non-hazardous ingredients			100
HEC	Viscosifier contingency	11,00	0,066	Non-hazardous ingredients			100
Sodium Carbonate (Soda Ash)	pH control	2,00	0,012	Sodium Carbonate			497-19-8/207-838-8
Nitrogen Gas	Liquid lifting	5,00	0,030	Non-hazardous ingredients			100
Potassium Chloride	Salt	0,00	0,000	Non-hazardous ingredients			100
TOTALS		16695,10	100,000				

Summary	Product Weight (kg)	Product Weight (%)
Salt water (5% KCl brine)	211173,90	88,618
Proppant	23865,00	10,015
Chemicals	3257,00	1,367
Gellant		0,387
Liquid frac concentrate		0,421
Buffer		0,147
Suspending agent		0,010
Surfactant		0,088
Biocide		0,005
Gel stabilizer		0,051
Crosslinker		0,238
Breaker		0,019
Total	238295,90	100,000



* 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)