

### **Description**

CALCIUM CHLORIDE TG ( $\text{CaCl}_2$ ) is a white inorganic salt of 77 - 80% purity available in various forms.

### **Typical Properties**

Appearance : White pellet, flake or powder  
Purity : 77 - 80%

### **Features and Benefits**

CALCIUM CHLORIDE TG is used to prepare solids free workover and completion fluids with densities up to 11.6 lb/gal.

CALCIUM CHLORIDE TG is also used to increase the density of various calcium chloride/calcium bromide/zinc bromide blends.

CALCIUM CHLORIDE TG brines contribute to formation damage control by stabilizing the water sensitive clays during workover and completion operations.

CALCIUM CHLORIDE TG is utilized to adjust the activity of the water phase in invert emulsion systems.

An exothermic reaction takes place when CALCIUM CHLORIDE TG is added to water. This results in an increase in brine temperature.

### **Application**

CALCIUM CHLORIDE TG is utilized to build clear brine workover and completion fluids for formations with pressure gradients ranging from 0.437 to 0.603 psi/ft. It is also used to control activity of water phase in oil-base drilling fluids.

### **Limitations**

CALCIUM CHLORIDE TG brines may cause scale formation when formation waters are rich in carbonate and sulfate ions. This problem is also anticipated in wells producing gas with significant amount of carbon dioxide.

### **Treatment**

Refer to mixing table (Table-1) to obtain the desired density and crystallization temperature. CALCIUM CHLORIDE TG is added to fresh water through the rig hopper while agitating until solids completely dissolve.

### **Packaging**

CALCIUM CHLORIDE TG is supplied in 25 kg (55 lb) moisture-proof, multiwall sacks.

**Table 1. Mixing Schedule for 1 bbl Calcium Chloride Brine Using Powdered CaCl<sub>2</sub> (77 - 80%)**

Density (lb/gal)	Specific Gravity	CaCl <sub>2</sub> (wt%)	Water (bbl)	CaCl <sub>2</sub> (lb/bbl)	TCT (°F)
8.4	1.008	0.8	0.998	3.5	31
8.5	1.020	2.2	0.992	10.0	30
8.6	1.032	3.5	0.986	16.3	29
8.7	1.044	4.9	0.979	22.8	27
8.8	1.056	6.2	0.972	29.5	25
8.9	1.068	7.5	0.966	35.8	24
9.0	1.080	9.7	0.946	47.5	21
9.1	1.092	11.1	0.937	54.8	19
9.2	1.104	12.4	0.929	60.9	17
9.3	1.116	13.7	0.920	68.2	15
9.4	1.128	15.0	0.911	75.5	12
9.5	1.140	16.2	0.904	82.8	9
9.6	1.152	17.5	0.894	90.1	6
9.7	1.164	18.7	0.885	97.4	3
9.8	1.176	19.9	0.877	104.7	0
9.9	1.188	21.1	0.868	112.1	-4
10.0	1.200	22.3	0.857	120.6	-8
10.1	1.212	23.5	0.848	127.9	-13
10.2	1.224	24.6	0.838	135.2	-18
10.3	1.236	25.8	0.828	142.5	-23
10.4	1.248	26.9	0.818	151.0	-29
10.5	1.261	28.0	0.808	158.3	-36
10.6	1.273	29.1	0.798	165.6	-43
10.7	1.285	30.2	0.787	174.2	-51
10.8	1.297	31.3	0.776	181.5	-59
10.9	1.309	32.4	0.765	190.0	-40
11.0	1.321	33.5	0.754	198.5	-22
11.1	1.333	34.6	0.741	207.1	-11
11.2	1.345	35.6	0.732	214.4	0
11.3	1.357	36.7	0.718	222.9	13
11.4	1.369	37.7	0.707	231.4	27
11.5	1.381	38.8	0.694	239.9	35
11.6	1.393	39.8	0.682	248.5	44