



LIQUIDOW Calcium Chloride

General Description

LIQUIDOW* calcium chloride is a liquid solution form of calcium chloride. It is available in concentrations ranging from 28–42% calcium chloride. LIQUIDOW calcium chloride meets ASTM D 98 and AASHTO M144 requirements for calcium chloride purity. ASTM classification for LIQUIDOW calcium chloride is “Type L.”

Applications

LIQUIDOW calcium chloride is primarily used for dust control of unpaved roads and parking lots, and prewetting rock salt deicers.

LIQUIDOW calcium chloride also has a large number of other uses. Uses are generally industrial in nature, and include concrete acceleration, tire weighting, brine refrigeration systems, waste water treatment, and as a calcium source for chemical processing.

LIQUIDOW 32% is commonly used for winter deicing applications because it combines a low freezing point with a concentration that is higher than other liquid deicers. Spring and summer dust control applications usually use concentrations of 35 or 38%. When the product can be kept warm in storage, 42% is preferred because shipping cost per pound of active ingredient is lower with the more concentrated product.

Product properties are shown in the table to the right. Please note that these are “typical” properties, not specifications. Contact a Dow representative to receive a specification for a specific product.

Availability

LIQUIDOW calcium chloride is available in bulk tank truck, rail car, and barges.



Typical Properties of Common Concentrations

Calcium Chloride	28%	32%	35%	38%	42%
Potassium Chloride, (%)	0.75	0.86	0.94	1.02	1.12
Sodium Chloride, (%)	0.51	0.58	0.63	0.69	0.76
Other Impurities, (%)	0.11	0.12	0.13	0.14	0.16
Density, (lbs/gal)	10.60	10.99	11.28	11.57	11.96
Freeze Point, (deg F)	-46	-17	20	48	69

Safety and Handling

For brief contact, no precautions other than clean body-covering clothing should be needed. Selection of specific items such as goggles, gloves, and apron will depend on the operation. Eye/face protection is recommended for dusty operations or when handling solutions.

Appropriate ventilation should be in place to keep atmospheric levels below industrial hygiene guidelines (Dow IHG for calcium chloride is 10 mg/cu. meter).

Rubber boots and gloves are recommended, due to the adverse effect of calcium chloride on leather.

Consult authorities for proper disposal information.

For full safety and handling details, contact The Dow Chemical Company for a current copy of the Material Safety Data Sheet for this product.

For more information contact The Dow Chemical Company Customer Information Center at 1-800-447-4369.

*Trademark of The Dow Chemical Company

Table 1—Typical Physical Properties of Solutions of LIQUIDOW Calcium Chloride —English System

% CaCl ₂	Approximate Specific Gravity @ 77°F	Weight (lbs./gal.) @ 77°F	Gallons per Ton of Sol. @ 77°F	Gallons per Dry Ton @ 77°F	DOWFLAKE* Equiv. Lbs. per Gal. of Sol. @ 77°F	PELADOW* 90% Equiv. Lbs. per Gal. of Sol. @ 77°F	Anhydrous Calcium Chloride 94-97% Mini-Pellets Equiv. Lbs. per Gal. of Sol. @ 77°F	Freezing Point (°F)
0	1.000	8.31	—	—	—	—	—	+32
5	1.047	8.72	229	4,571	0.57	0.48	0.46	+27
6	1.056	8.80	227	3,788	0.69	0.59	0.56	+25
7	1.065	8.87	225	3,221	0.82	0.69	0.66	+24
8	1.074	8.95	223	2,793	0.95	0.80	0.77	+23
9	1.083	8.02	222	2,464	1.09	0.91	0.87	+21
10	1.090	9.06	221	2,208	1.16	1.00	0.96	+20
11	1.100	9.14	219	1,990	1.29	1.10	1.06	+18
12	1.110	9.22	217	1,808	1.42	1.22	1.16	+16
13	1.120	9.31	215	1,653	1.55	1.33	1.27	+14
14	1.129	9.38	213	1,523	1.68	1.44	1.38	+12
15	1.139	9.47	211	1,408	1.82	1.56	1.50	+10
16	1.149	9.55	209	1,309	1.96	1.68	1.61	+8
17	1.159	9.63	208	1,222	2.10	1.80	1.72	+5
18	1.169	9.71	206	1,144	2.24	1.92	1.84	+2
19	1.179	9.80	204	1,074	2.39	2.05	1.96	-1
20	1.189	9.88	202	1,012	2.53	2.17	2.08	-4
21	1.199	9.96	201	956	2.68	2.30	2.20	-8
22	1.209	10.05	199	905	2.83	2.43	2.33	-12
23	1.219	10.13	197	858	2.99	2.56	2.45	-16
24	1.228	10.20	196	817	3.14	2.69	2.58	-20
25	1.240	10.30	194	777	3.30	2.83	2.71	-25
26	1.251	10.40	192	740	3.47	2.97	2.85	-31
27	1.263	10.50	190	706	3.63	3.12	2.98	-38
28	1.275	10.60	189	674	3.81	3.26	3.12	-46
29	1.287	10.69	187	654	3.97	3.41	3.26	-53
29.6	1.294	10.75	186	629	4.08	3.50	3.35	-60
30	1.298	10.79	185	618	4.15	3.56	3.41	-52
31	1.310	10.89	184	592	4.33	3.71	3.55	-34
32	1.322	10.99	182	569	4.51	3.86	3.70	-17
33	1.334	11.09	180	547	4.69	4.02	3.85	-4
34	1.345	11.18	179	526	4.87	4.18	4.00	+10
35	1.357	11.28	177	507	5.06	4.34	4.16	+20
36	1.369	11.38	176	488	5.25	4.50	4.31	+30
37	1.381	11.48	174	471	5.45	4.67	4.47	+39
38	1.392	11.57	173	455	5.64	4.83	4.63	+48
39	1.404	11.67	171	439	5.84	5.00	4.79	+55
40	1.416	11.77	170	425	6.04	5.17	4.96	+61
41	1.428	11.87	168	411	6.24	5.35	5.12	+65
42	1.439	11.96	167	398	6.44	5.52	5.29	+69
45	1.474	12.25	163	363	7.07	6.06	5.80	+78

*Trademark of The Dow Chemical Company

Table 2—Typical Physical Properties of Solutions of LIQUIDOW Calcium Chloride — Metric System

% CaCl ₂	Approximate Specific Gravity @ 25°C	Weight (Kg/Liter) @ 25°C	Liters per Metric Ton of Sol. @ 25°C	Liters per Dry Metric Ton @ 25°C	DOWFLAKE Equiv. Kgs. per Liter of Sol. @ 25°C	PELADOW 90% Equiv. Kgs. per Liter of Sol. @ 25°C	Anhydrous Calcium Chloride 94-97% Mini-Pellets Equiv. Kgs. per Liter of Sol. @ 25°C	Freezing Points (°C)
0	1.000	0.997	—	—	—	—	—	+0
5	1.047	1.045	957	19,141	0.068	0.058	0.055	-3
6	1.056	1.055	948	15,805	0.083	0.071	0.067	-4
7	1.065	1.063	941	13,440	0.098	0.083	0.079	-4
8	1.074	1.073	932	11,655	0.114	0.096	0.092	-5
9	1.083	1.081	925	10,279	0.131	0.109	0.104	-6
10	1.090	1.087	920	9,200	0.139	0.119	0.114	-7
11	1.100	1.097	912	8,287	0.155	0.133	0.127	-8
12	1.110	1.107	903	7,528	0.170	0.146	0.140	-9
13	1.120	1.117	895	6,887	0.186	0.160	0.153	-10
14	1.129	1.126	888	6,344	0.202	0.173	0.166	-11
15	1.139	1.136	880	5,869	0.218	0.187	0.179	-12
16	1.149	1.146	873	5,454	0.235	0.201	0.193	-13
17	1.159	1.156	865	5,089	0.252	0.216	0.207	-15
18	1.169	1.165	858	4,769	0.269	0.231	0.221	-17
19	1.179	1.175	851	4,479	0.286	0.245	0.235	-18
20	1.189	1.185	844	4,219	0.304	0.261	0.250	-20
21	1.199	1.195	837	3,985	0.322	0.276	0.264	-22
22	1.209	1.205	830	3,772	0.340	0.291	0.279	-24
23	1.219	1.215	823	3,578	0.358	0.307	0.294	-27
24	1.228	1.224	817	3,404	0.377	0.323	0.309	-29
25	1.240	1.236	809	3,236	0.396	0.340	0.325	-32
26	1.251	1.247	802	3,084	0.416	0.356	0.341	-35
27	1.263	1.259	794	2,942	0.436	0.374	0.358	-39
28	1.275	1.271	787	2,810	0.456	0.391	0.375	-43
29	1.287	1.283	779	2,688	0.477	0.409	0.392	-47
29.6	1.294	1.290	775	2,619	0.490	0.420	0.402	-51
30	1.298	1.294	773	2,576	0.498	0.427	0.409	-47
31	1.310	1.306	766	2,470	0.519	0.445	0.426	-37
32	1.322	1.318	759	2,371	0.541	0.463	0.444	-27
33	1.334	1.330	752	2,278	0.563	0.482	0.462	-20
34	1.345	1.341	746	2,193	0.585	0.501	0.480	-12
35	1.357	1.353	739	2,112	0.607	0.520	0.498	-7
36	1.369	1.365	733	2,035	0.630	0.540	0.517	-1
37	1.381	1.377	726	1,963	0.653	0.560	0.536	+4
38	1.392	1.388	720	1,891	0.676	0.580	0.555	+9
39	1.404	1.400	714	1,832	0.700	0.600	0.575	+13
40	1.416	1.412	708	1,771	0.724	0.621	0.594	+16
41	1.428	1.424	702	1,713	0.748	0.631	0.614	+18
42	1.439	1.435	697	1,659	0.773	0.662	0.634	+21
45	1.474	1.470	680	1,512	0.848	0.727	0.696	+26

Notice: No freedom from any patent owned by Seller or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other governmental enactments. Seller assumes no obligation or liability for the information in this document. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

Published December 2003.

