



# DOWFLAKE

## 77-80% CALCIUM CHLORIDE

### General Description

DOWFLAKE\* 77-80% calcium chloride is a flaked calcium chloride dihydrate product. DOWFLAKE 77-80% calcium chloride meets ASTM D 98 and AASHTO M144 requirements for calcium chloride purity. ASTM classification for DOWFLAKE 77-80% calcium chloride is "Type S; Grade 1, Class A."

### Applications

DOWFLAKE 77-80% calcium chloride is primarily used for dust control of unpaved roads and parking lots, and as a deicer.

Industrial applications include concrete acceleration, tire weighting, brine refrigeration systems, waste water treatment, and as a calcium source for chemical processing.

Many applications of DOWFLAKE 77-80% calcium chloride require the material to be put into solution. Typical properties of these solutions are found in Tables 1 & 2 on the back of this sheet.

### Physical Properties

Appearance	White Flakes
Odor	None
Bulk Density	51-60 lbs. / cu. ft.
Sieve Analysis	0% > 3/8 inch 0-20% > #4 sieve 95-100% > #30 sieve

### Availability

DOWFLAKE 77-80% calcium chloride is available in various package sizes and in bulk truck and bulk rail.



### Typical Chemical Properties

Item	Limit	Unit
Calcium Chloride, min.	77.0	%
Total Alkali Salts (as NaCl), max.	4.3	%
Total Magnesium (as MgCl <sub>2</sub> ), max.	0.07	%
Other Impurities, max.	0.85	%
Calcium Hydroxide, max.	0.10	%
Calcium Carbonate, max.	0.07	%

### 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.

Calcium chloride generates a great deal of heat when it is dissolved. Use cool (less than 80°F/26°C) water when making solutions.

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.

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**Table 1—Typical Physical Properties of Solutions of DOWFLAKE 77-80% Calcium Chloride—English System**

% CaCl <sub>2</sub>	Approximate Specific Gravity @ 77°F	Weight (lbs./gal.) @ 77°F	Lbs. DOWFLAKE per Gal. Sol. @ 77°F	Gals. Solution per Ton DOWFLAKE @ 77°F	Lbs. DOWFLAKE per Gal. H <sub>2</sub> O @ 77°F	Final Volume Gallons	Freezing Point (°F)
0	1.000	8.31	0	—	0	1.000	+32
10	1.090	9.06	1.16	1722	1.22	1.052	+20
11	1.100	9.14	1.29	1552	1.36	1.058	+18
12	1.110	9.22	1.42	1410	1.51	1.065	+16
13	1.120	9.31	1.55	1289	1.66	1.071	+14
14	1.129	9.38	1.68	1188	1.82	1.080	+12
15	1.139	9.47	1.82	1098	1.98	1.087	+10
16	1.149	9.55	1.96	1021	2.14	1.094	+8
17	1.159	9.63	2.10	953	2.32	1.104	+5
18	1.169	9.71	2.24	893	2.49	1.112	+2
19	1.179	9.80	2.39	838	2.68	1.121	-1
20	1.189	9.88	2.53	789	2.87	1.132	-4
21	1.199	9.96	2.68	746	3.06	1.142	-8
22	1.209	10.05	2.83	706	3.26	1.151	-12
23	1.219	10.13	2.99	670	3.48	1.169	-16
24	1.228	10.20	3.14	637	3.69	1.176	-20
25	1.240	10.30	3.30	606	3.92	1.187	-25
26	1.251	10.40	3.47	577	4.16	1.199	-31
27	1.263	10.50	3.63	550	4.40	1.210	-38
28	1.275	10.60	3.81	526	4.65	1.223	-46
29	1.287	10.69	3.97	503	4.92	1.238	-53
29.6	1.294	10.75	4.08	490	5.08	1.246	-60
30	1.298	10.79	4.15	482	5.19	1.251	-52
31	1.310	10.89	4.33	462	5.48	1.266	-34
32	1.322	10.99	4.51	444	5.78	1.282	-17
33	1.334	11.09	4.69	426	6.09	1.298	-4
34	1.345	11.18	4.87	410	6.42	1.318	+10
35	1.357	11.28	5.06	395	6.76	1.336	+20
36	1.369	11.38	5.25	381	7.12	1.356	+30
37	1.381	11.48	5.45	367	7.50	1.377	+39
38	1.392	11.57	5.64	355	7.89	1.400	+48
39	1.404	11.67	5.84	343	8.31	1.424	+55
40	1.416	11.77	6.04	331	8.75	1.449	+61
41	1.428	11.87	6.24	321	9.21	1.476	+65
42	1.439	11.96	6.44	311	9.70	1.506	+69
45	1.474	12.25	7.07	283	11.33	1.603	+78

**Table 2—Typical Physical Properties of Solutions of DOWFLAKE 77-80% Calcium Chloride—Metric System**

% CaCl <sub>2</sub>	Approximate Specific Gravity @ 25°C	Weight (kg/liter) @ 25°C	Kgs. DOWFLAKE per liter Sol. @ 25°C	Liters Solution per Metric Ton DOWFLAKE @ 25°C	Kg DOWFLAKE per Liter H <sub>2</sub> O @ 25°C	Final Volume Liters	Freezing Point (°C)
0	1.000	0.997	0.000	—	—	1.000	0
10	1.090	1.087	0.139	7177	0.147	1.052	-7
11	1.100	1.097	0.155	6466	0.164	1.058	-8
12	1.110	1.107	0.170	5873	0.181	1.064	-9
13	1.120	1.117	0.186	5373	0.199	1.071	-10
14	1.129	1.126	0.202	4950	0.218	1.079	-11
15	1.139	1.136	0.218	4579	0.237	1.086	-12
16	1.149	1.146	0.235	4256	0.257	1.094	-13
17	1.159	1.156	0.252	3971	0.278	1.103	-15
18	1.169	1.165	0.269	3718	0.299	1.112	-17
19	1.179	1.175	0.286	3492	0.321	1.122	-18
20	1.189	1.185	0.304	3290	0.344	1.132	-20
21	1.199	1.195	0.322	3107	0.367	1.141	-22
22	1.209	1.205	0.340	2941	0.392	1.153	-24
23	1.219	1.215	0.358	2790	0.417	1.164	-27
24	1.228	1.224	0.377	2655	0.443	1.176	-29
25	1.24	1.236	0.396	2524	0.470	1.187	-32
26	1.251	1.247	0.416	2405	0.499	1.200	-35
27	1.263	1.259	0.436	2294	0.528	1.211	-39
28	1.275	1.271	0.456	2191	0.558	1.223	-43
29	1.287	1.283	0.477	2096	0.590	1.237	-47
29.6	1.294	1.290	0.490	2043	0.610	1.246	-51
30	1.298	1.294	0.498	2009	0.623	1.252	-47
31	1.31	1.306	0.519	1926	0.658	1.267	-37
32	1.322	1.318	0.541	1849	0.694	1.283	-27
33	1.334	1.330	0.563	1777	0.731	1.299	-20
34	1.345	1.341	0.585	1711	0.770	1.318	-12
35	1.357	1.353	0.607	1647	0.812	1.337	-7
36	1.369	1.365	0.630	1587	0.855	1.357	-1
37	1.381	1.377	0.653	1531	0.900	1.378	4
38	1.392	1.388	0.676	1479	0.947	1.401	9
39	1.404	1.400	0.700	1429	0.997	1.424	13
40	1.416	1.412	0.724	1381	1.049	1.449	16
41	1.428	1.424	0.748	1336	1.105	1.476	18
42	1.439	1.435	0.773	1294	1.163	1.505	21
45	1.474	1.470	0.848	1179	1.360	1.603	26

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