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Physical data of calcined kaolin-water suspensions

Scope

The data presented in this TIP serve as a quick reference for determining the weight of a calcine slurry or amount of dry calcined clay per gallon of slurry at specified percent clay slurry solids. It can also be used to determine the volume of slurry per ton of dry calcined clay at specified percent solids.

Safety precautions

Not applicable.

Keywords

Clay, Density, Solids content, Dispersions, Slurry, Calcination

Additional Information

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Calcined kaolin solids	Specific gravity	Lb. Slurry per gallon	Lb. dry clay per gallon	Cubic ft per ton dry clay	Gal per ton dry clay	Grams dry clay per gallon
%	g/ml	lb/gal	lb/gal	ft ³ /ton	gal/ton	g/gal
1.0	1.006	8.40	0.08	3183.3	23813	38
2.0	1.013	8.45	0.17	1581.5	11830	77
3.0	1.019	8.51	0.26	1047.6	7836	116
4.0	1.026	8.56	0.34	780.6	5839	156
5.0	1.033	8.62	0.43	620.4	4641	196
6.0	1.040	8.68	0.52	513.6	3842	236
7.0	1.047	8.73	0.61	437.3	3271	278
8.0	1.054	8.79	0.70	380.1	2843	319
9.0	1.061	8.85	0.80	335.6	2511	362
10.0	1.068	8.91	0.89	300.0	2244	405
11.0	1.075	8.97	0.99	270.9	2026	448
12.0	1.082	9.03	1.08	246.6	1845	492
13.0	1.090	9.10	1.18	226.1	1691	537
14.0	1.098	9.16	1.28	208.5	1560	582
15.0	1.105	9.22	1.38	193.2	1445	628
16.0	1.113	9.29	1.49	179.9	1346	675
17.0	1.121	9.36	1.59	168.1	1258	722
18.0	1.129	9.42	1.70	157.6	1179	770
19.0	1.137	9.49	1.80	148.3	1109	819
20.0	1.145	9.56	1.91	139.8	1046	868
21.0	1.154	9.63	2.02	132.2	989	918
22.0	1.162	9.70	2.13	125.3	937	969
23.0	1.171	9.77	2.25	118.9	890	1020
24.0	1.180	9.85	2.36	113.1	846	1073
25.0	1.189	9.92	2.48	107.8	806	1126
26.0	1.198	10.00	2.60	102.9	770	1180
27.0	1.207	10.07	2.72	98.3	735	1235
28.0	1.216	10.15	2.84	94.1	704	1290
29.0	1.226	10.23	2.97	90.1	674	1347
30.0	1.235	10.31	3.09	86.4	647	1404
31.0	1.245	10.39	3.22	83.0	621	1462
32.0	1.255	10.47	3.35	79.8	597	1522
33.0	1.265	10.56	3.48	76.7	574	1582
34.0	1.275	10.64	3.62	73.9	553	1643
35.0	1.286	10.73	3.76	71.2	533	1705

Note: Density of water = .99704 g/ml @ 25°C,
Specific Gravity of Calcined Kaolin = 2.74 g/ml

Formula Used To Generate Data

$$S = \frac{B(A - 1)}{A(B - 1)}$$

S = Solids of Clay Slurry
A = Specific Gravity of Clay Slip
B = Specific Gravity of Calcined Kaolin

NOTE: These tables are computed on the basis of calcined clay having density of 2.74 g/cm³ in water with a density of 0.99704 at 25.0°C. It should be realized that commercial clays vary somewhat in density. For most accurate results, the actual density of the specific clay pigment should be measured. This table is sufficiently accurate for routine mill and lab calculations.