COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA COMMERCIAL ITEM DESCRIPTION (PCID)

PCID NO. 1178 Calcium Chloride
Eff. 06/04/2024

This Pennsylvania Commercial Item Description covers requirements for calcium chloride, technical grade, typically used for, but not limited to, dust control, stabilization, ice/snow removal, other road-conditioning purposes, acceleration of the set of concrete, and as a desiccant. Product shall be delivered in a free-flowing and usable condition.

1. Classification

1.1 ***Type*** - Two types of calcium chloride are covered as follows:
1.1.1 **Type S** (Solid) - Flake, pellet, or granular calcium chloride (CaCl2) in varying concentrations.
1.1.2 **Type L** (Liquid) - Water solutions of calcium chloride in varying concentrations.

1.2 ***Concentrations*** - Concentrations of Type S and Type L calcium chloride shall be expressed as a percentage of the total. Type S shall be further expressed as Grades as in section1.3 and in accordance with the chemical requirements of this specification.
1.2.1 The concentrations of Type S (solid) calcium chloride are 77, 83, 90, and 94 % minimum.
1.2.2 The concentrations of Type L (liquid) calcium chloride shall be specified by the Commonwealth of PA. Concentrations shall vary from 28 to 42 %.

1.3 ***Grades*** - Type S (solid) calcium chloride is graded as follows:
1.3.1 **Grade N1**, 77 % minimum calcium chloride concentration of either Class A - Flake, or Class B - Granular.
1.3.2 **Grade N2**, 83 % minimum calcium chloride concentration of Class A - Flake, Class B - Pellet, Class C - Granular, or Class D - Powder.
1.3.3 **Grade N3**, 90 % minimum calcium chloride concentration of Class A - Flake, Class B - Pellet, Class C - Granular, or Class D - Powder.
1.3.4 **Grade N4**, 94 % minimum calcium chloride concentration of Class A - Flake, Class B - Pellet, Class C - Granular, or Class D - Powder.

2. Chemical Requirements

2.1 The calcium chloride shall conform to the following requirements for chemical composition, except for the tolerances stated in section 4.2.

2.1.1 CaCl2 content, %, not less than the minimum concentration nor greater than the maximum concentration, as specified in sections 1.2 and 1.3.
2.1.2 Impurity content, %, specified relative to the amount of active ingredient (CaCl2) in the product:
Total alkali chlorides (as NaCl), max, % 6.0
Total magnesium as MgCl2, max, % 0.5
Calcium hydroxide, max, % 0.2

3. Physical Requirements

3.1 The grading of solid form calcium chloride shall conform to the requirements in the table below:

Sieve Size	Mass % Passing													
	Grade N1—77 % min $CaCl_2$			Grade N2—83 % min $CaCl_2$				Grade N3—90 % min $CaCl_2$				Grade N4—94 % min $CaCl_2$		
	Class A Flake	Class B Granular	Class A Flake	Class B Pellets	Class C Granular	Class D Powder	Class A Flake	Class B Pellets	Class C Granular	Class D Powder	Class A Flake	Class B Pellets	Class C Granular	Class D Powder
31.5 mm 1¼ in.	...	...	...	...	100	...	...	...	100	...	...	...	100	...
9.5 mm ⅜ in.	100	100	100	100	...	...	100	100	...	...	100	100	...	...
4.75 mm No. 4	80–100	0–80	80–100	80–100	0–5	100	80–100	80–100	0–5	100	80–100	80–100	0–5	100
2.36 mm No. 8	...	...	...	...	...	80–100	...	...	...	80–100	..	...	...	80–100
1.18 mm No. 16	...	...	...	...	...	...	...	...	...	...	...	...	...	...
850 µm No. 20	...	...	...	0–10	...	...	...	0–10	...	...	...	0–10	...	...
600 µm No. 30	0–5	0–5	0–5	0–5	...	0–65	0–5	0–5	...	0–65	0–5	0–5	...	0–65

3.2 Moisture content shall not exceed 3.0% by weight.
3.3 A minimum 20ppm anticaking uniformly distributed, must be present in all bulk deliveries, (anticake, storite, or equal).
3.4 A current Safety Data Sheet (SDS) for the sodium chloride AND anticaking agents or other additives used shall be required.

4. Sampling, Examination, and Testing

4.1 Sampling, examining, and testing of calcium chloride shall be done in accordance with ASTM Test Methods D345 and E449.
4.2 If the Commonwealth of PA elects to sample the material (solid or liquid) after delivery, a tolerance of 1 % below the minimum CaCl2 requirement shall apply, provided that the material has been analyzed correctly and transported properly.

5. Inspection

5.1 Unless otherwise specified in the bid document(s), contract, or purchase order, the supplier shall be responsible for the performance of all inspection requirements as specified herein.
5.2 Except as otherwise specified, the supplier shall use their own facilities or any commercial laboratory acceptable to the Commonwealth of PA for analysis of material. The Commonwealth of PA reserves the right to perform any of the inspections set forth in this specification where such inspections are deemed necessary to ensure that supplies and services conform to the prescribed requirements.

9. Rejection

9.1 The calcium chloride shall be subject to rejection if it fails to conform to any of the requirements of this specification or, in the case of the solid forms, if it has become caked or sticky in shipment. Calcium chloride that is not free-flowing or is otherwise contaminated, whether tested or not, may also be rejected.

10. Certificate of Compliance

10.1 Bidders shall furnish a notarized certificate with the completed bid, signed by a responsible officer of the manufacturer, stating compliance with the chemical and physical requirements listed in sections 2 and 3 of this specification. Bidders shall also supply a typical test data sheet for each type and grade.

11. Referenced Documents

7.1 AASHTO Standard M 144-14, Specification for Calcium Chloride
7.2 ASTM Standard D98, Specification for Calcium Chloride
7.3 ASTM Standard D345, Test Method for sampling and Testing Calcium Chloride for Roads and Structural Applications
7.4 ASTM Standard E449, Test Methods for Analysis of Calcium Chloride

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