

O-S-1926
March 1, 1976
SUPERSEDING
Int. Fed. Spec. SS-S-00550B (GSA-FSS)
July 24, 1970, and
Fed. Spec. SS-S-550
July 5, 1957

FEDERAL SPECIFICATION

SODIUM CHLORIDE, TECHNICAL

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers four types of common salt (sodium chloride) (see 6.1).

1.2 Classification. Sodium chloride shall be of the following types, as specified (see 6.2):

- Type I - Rock salt.
- Type II - Vacuum evaporated salt.
- Type III - Compressed evaporated salt.
- Type IV - Solar evaporated salt.

2. APPLICABLE DOCUMENTS

2.1 The following documents, of the issues in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

Federal Specifications:

- L-P-378 - Plastic Sheet and Strip, Thin Gauge, Polyolefin.
- UU-S-48 - Sacks, Shipping, Paper.
- PPP-D-26 - Bag, Plastic (General Purpose).

Federal Standard:

- Fed. Std. No. 123 - Marking for Shipment (Civil Agencies).

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlined under General Information in the Index of Federal Specifications and Standards and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

(Single copies of this specification and other Federal Specifications required by activities outside the Federal Government for bidding purposes are available without charge from Business Service Centers at the General Services Administration Regional Offices in Boston, New York, Washington, DC, Atlanta, Chicago, Kansas City, MO, Fort Worth, Denver, San Francisco, Los Angeles, and Seattle, WA.

(Federal Government activities may obtain copies of Federal Specifications Standards, and Handbooks and the Index of Federal

Specifications and Standards from established distribution points in their agencies.)

Military Standards:

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.

MIL-STD-129 - Marking for Shipment and Storage.

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(Copies of Military Specifications and Standards required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless a specific issue is identified, the issue in effect on date of invitation for bids or request for proposal shall apply.

American Society for Testing and Materials (ASTM) Standard:

D 502 - Method of Test of Particle Size of Soaps and Other Detergents.

E 11 - Standard Specification for Wire-Cloth Sieves for Testing Purposes.

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

American Water Works Association (AWWA) Standard:

B200 - Sodium Chloride.

(Application for copies should be addressed to the American Water Works Association, 6666 West Quincy Avenue, Denver, Co 80235.)

National Motor Freight Traffic Association, Inc., Agent:

National Motor Freight Classification.

(Application for copies should be addressed to the American Trucking Associations, Inc., Tariff Order Section, 1616 P Street, N.W., Washington, DC 20036.)

Uniform Classification Committee, Agent:

Uniform Freight Classification.

(Application for copies should be addressed to the Uniform Classification Committee, Room 1106, 222 South Riverside Plaza, Chicago, IL 60606.)

3. REQUIREMENTS

3.1 Material. Sodium chloride shall be a crystalline material.

3.2 Particle size. Sodium chloride shall conform to the requirements of table I when tested as specified in 4.3.1.

TABLE I. Particle size requirements for sodium chloride

Requirements	Type			
	I	II	III	IV
Percent retained on 31.5 mm (1-1/4-inch) sieve	-	-	-	0
25.4 mm (1-inch)	-	-	0	-
19.0 mm (3/4-inch)	0	-	-	-
2.00 mm (No. 10)	-	0	-	-
600 um (No. 30)	-	-	90	-
250 um (No. 60)	95	-	-	-
150 um (No. 100)	-	95	-	95

3.3 Chemical requirements. Sodium chloride shall conform to the requirements of table II when tested as specified in 4.3.2.

TABLE II. Chemical Requirements for Sodium Chloride

Requirements	Type			
	I	II	III	IV
Moisture, percent maximum	3.00	0.20	0.50	3.00
Insoluble matter, percent maximum	2.00	0.05	0.15	0.15
Calcium and magnesium, percent maximum	1.50	0.15	0.60	0.60
Sulfate, percent maximum	3.00	0.35	1.40	1.40
Grease, fat, and oil, percent maximum	0.01	0.01	0.01	0.01
pH value[1]	5.0 - 8.5			
Total impurities, percent maximum	4.00	0.50	2.00	2.00
Sodium chloride percent minimum (dry basis)	96.0	99.50	98.00	98.0

[1] When salt contains iron-removal compounds, it may have a lower pH value of 2.0, instead of 5.0.

3.4 Workmanship. Sodium chloride shall be white, grayish pink, or brownish white in color. It shall be visibly free from foreign matter, and suitable for the intended use.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure that supplies and services conform to prescribed requirements.

4.2 Quality conformance inspection.

4.2.1 Examination of preparation for delivery.

4.2.1.1 Lot. For this examination, a lot shall be sodium chloride, fully packed, marked, and offered for examination at one time. Lot size shall be expressed in, number of filled shipping containers.

4.2.1.2 Sampling plan. Sample unit for this examination shall be one filled shipping container. Sampling shall be conducted in accordance with

MIL-STD-105. Sample size, acceptance and rejection numbers shall be determined by special inspection level S-2 and acceptable quality level (AQL) 4.0 percent defective, respectively. Defects shall be scored in accordance with table III.

4.2.2 Examination of closure for container.

4.2.2.1 Lot. For this examination, a lot shall be as specified in 4.2.1.1.

4.2.2.2 Sampling plan. Sampling plan shall be as specified in 4.2.1.2, except that the sample unit shall be one filled and closed shipping container and that defects shall be scored in accordance with the examination for closure of the applicable packing specification.

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TABLE III. Examination of preparation for delivery

Examine	Defect
Marking	Omitted; incorrect; illegible; not as specified.
Packing	Not as specified.
Contents	Net content: less than specified.
Workmanship	Tear; split; crack; hole; closure incomplete or inadequate; leakage or seepage from any part of the container.

4.2.3 Examination of material and workmanship.

4.2.3.1 Lot. For this examination, a lot shall be sodium chloride produced by one producer, at one site, from the same raw materials, within a 24-hour period, by the same process, and offered for examination at one time.

4.2.3.2 Sampling plan. Sample size for this examination shall be approximately 10 pounds. Sampling shall be performed in accordance with AWWA Standard B200, except that the samples may be taken at the point of origin instead of destination. Defects shall be determined in accordance with table IV. Lot shall be rejected if sample contains one defect.

TABLE IV. Examination of material and workmanship

Examine	Defect
Material	Not crystalline.
Workmanship	Color not as specified; foreign matter visibly present.

4.2.4 Testing.

4.2.4.1 Lot. A lot shall be as specified in 4.2.3.1.

4.2.4.2 Sampling plan. Sample size for testing shall be 1500g (approximately 3 lb.). Three 500-g samples shall be provided by thoroughly mixing and splitting an approximate 10-lb sample drawn at random from throughout the lot. Each 500-g sample shall be sealed in an airtight, moistureproof glass or plastic container with identifying lot number and date. One of the three 500-g split samples shall be designated as the test sample. All testing shall be performed on the designated sample. Lot shall be rejected if the designated sample fails to meet any specified requirement.

4.3 Test methods.

4.3.1 Particle size. Particle size shall be determined in accordance with ASTM D 502, except that sampling shall be as specified in 4.2.4.2 and sieve sizes shall be as specified in table I. Sieves shall conform to ASTM Standard E 11. Percent salt retained shall be calculated by dividing the weight of the residue retained on the bottom (smaller) sieve by the original weight of the sample, and multiplying by 100.

4.3.2 The following determinations shall be made in accordance with the method given in AWWA Standard B200:

- (a) Percent moisture.
- (b) Percent insoluble matter.
- (c) Percent calcium and magnesium.
- (d) Percent sulfate.
- (a) Percent grease, fat, and oil.
- (f) pH value.
- (g) Percent total impurities.
- (h) Percent sodium chloride.

5. PREPARATION FOR DELIVERY

5.1 Packing. Packing shall have level A, E, or C, as specified (see 6.2).

5.1.1 Level A. Fifty (50) or one hundred (100) pounds as specified (see 6.2), of one type of sodium chloride as specified (see 6.2), shall be furnished in a sack conforming to UU-S-48, level A packing for sodium chloride.

5.1.2 Level B. Sodium chloride shall be furnished as specified in 5.1.1, except that the sack shall be as for level B packing and that the bag shall be domestic type. Alternatively, sodium chloride of one type as specified (see 6.2) may be furnished in a plastic bag conforming to PPP-B-26. The type and style of the bag may be at the option of the supplier. The plastic shall conform to L-P-378, type I or II, class 2 or 3, grade A or B, finish 2, except that the material may be pigmented instead of natural. The thickness of the plastic shall be 0.0040-inch.

5.1.3 Level C. Sodium chloride in quantities as specified (see 6.2), shall be packed in containers to assure carrier acceptance and safe arrival at destination. Containers shall comply with Uniform Freight Classification or National Motor Freight Classification, as applicable.

5.2 Marking. Containers shall be marked in accordance with Fed. Std. No. 123 or MIL-STD-129, as specified (see 6.2).

6. NOTES

6.1 Intended use. Sodium chloride is intended for use in water-softening equipment; specifically, it is used to make a regenerant brine for the ion-exchanger.

6.1.1 Selection of type. Selection of the type of sodium chloride to be used in a particular water-softening unit should be in accordance with the unit-manufacturer's recommendation. Different types of salt may be interchangeable for use in a particular unit. In selecting the type of salt to be used, particle size and chemical properties may be used as criteria for selection, and nomenclature may be disregarded. Unit-manufacturer's recommendation should be followed and his advice should be obtained whenever regeneration of the ion-exchanger presents difficulty. All types may be available with or without iron-removal compounds. In order to aid in the selection of type, a brief description of each type is provided below. In general, salt should be selected on the basis of the brine purity required and the ability of equipment to handle levels of impurities.

6.1.1.1 Type I. Type I is natural deposit rock salt. It is the common salt readily available in the central and eastern United States. Rock salt is interchangeable with solar evaporated salt. Its selection should depend upon the location of the user. Because rock salt is mined, it may contain a greater amount of insoluble matter which will require clarification of the brine. The accumulation of insolubles in the brine tank is a disadvantage since periodic removal is necessary.

6.1.1.2 Type II. Type II is vacuum evaporated salt. It is produced by vacuum pan evaporation of brine prepared from rock or solar salt under conditions designed to control crystal size and impurity. Vacuum evaporated salt is readily available throughout the United States.

6.1.1.3 Type III. Type III is compressed evaporated salt. It has a dissolving rate approximately that of rock salt but has the advantage of

being more uniform in composition and size and containing a lesser amount of insoluble matter. Compressed salt is readily available throughout the United States.

6.1.1.4 Type IV. Type IV is solar evaporated salt. It is the common salt readily available in the Rocky Mountain, western United States, and eastern seaboard. Solar evaporated salt is interchangeable with rock salt. Its selection should depend upon the location of the user.

6.2 Ordering data. Purchasers should select the preferred options permitted herein and should include the following information in procurement documents:

- (a) Title, number, and date of this specification.
- (b) Type of sodium chloride required (see 1.2).
- (c) Size of packing required (see 5.1).
- (d) Level of packing required (see 5.1).
- (e) Marking document required (see 5.2).

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6.3 Supersession data. This specification supersedes Federal Specification SS-S-550 and Interim Amendment-1, and Interim Federal Specification SS-S-00550B.

6.4 Relation to AWWA Standard B200. The requirements of this specification are essentially the same as AWWA Standard B200.

Military review activities:

Army - GL
DSA - GS

Preparing activity:

GSA-FSS

Military user activities:

Army - PA, MI

Civil coordinating activities:

HEW-NIH
GSA-FSS

Orders for this publication are to be placed with General Services Administration, acting as an agent for the Superintendent of Documents. See Section 2 of this specification to obtain extra copies and other documents referenced herein. Price 30 cents each.