

Q-C-571C

August 12, 1969

SUPERSEDING

Fed. Spec. Q-C-571B

8 October 1948

## FEDERAL SPECIFICATION

### COKE (COAL)

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

#### 1. SCOPE

1.1 This specification covers coke (coal) of the following types and sizes as specified (see 6.2).

Type I - Foundry (by-product).

Size No. 1 - Foundry.

Type II - Domestic.

Size No. 2 - Egg.

Size No. 3 - Stove.

Size No. 4 - Nut.

#### 2. APPLICABLE DOCUMENTS

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

##### Federal Standard;

Fed. Std. No. 123 - Marking for Domestic Shipment  
(Civilian 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, Standards, and Handbooks 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

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Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.

(Single copies of this specification and other product specifications required by activities outside the Federal Government for bidding purposes are available without charge at the General Services Administration Regional Offices in Boston, New York, Washington, D. C., Atlanta, Chicago, Kansas City, Mo., Fort Worth, Denver, San Francisco, Los Angeles, and Seattle, Washington.

(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks and the Index of Federal Specifications, Standards, and Handbooks from established distribution points in their agencies.)

Military Standard:

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

(Copies of Military 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 otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

Uniform Classification Committee:

Uniform Freight Classification.

(Application for copies should be addressed to the Uniform Classification Committee, 202 Union Station, 516 W. Jackson Boulevard, Chicago, Illinois 60606.)

National Classification Board:

National Motor Freight Classification.

(Application for copies should be addressed to the National Classification Board, 1616 P Street, N. W., Washington, D. C. 20036.)

American Society for Testing and Materials (ASTM) Standards:

- D271 - Laboratory Sampling and Analyses of Coal and Coke.
- D293 - Test for Sieve Analysis of Coke.
- D294 - Tumbler Test for Coke.
- D346 - Sampling Coke for Analysis.
- D2490 - Tumbler Test for Small Coke.
- D2640 - Drop Shatter Test for Large Coke.

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

(Technical society and technical association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

### 3. REQUIREMENTS

3.1 Description. Coke shall be sound and uniformly coked. Unless otherwise specified (see 6.2 and 6.4), a minimum of 85 percent of the coke shall conform to the requirements in table I for the various sizes.

TABLE I. Sizes

Size No.	Size name	Dimensional limits (in.)	Screen size (square hole or equivalent)	
			Passing	Retained on
Foundry: 1	Foundry	Over 3	-	3-inch
Domestic: 2	Egg	3 x 2	3-inch	2-inch
3	Stove	2-1/2x1-1/2	2-1/2-inch	1-1/2-inch
4	Nut	1-1/2x1/2	1-1/2-inch	1/2-inch

3.1.1 Coke size after delivery. When sampled at destination, a minimum of 80 percent of coke shall be of a specified size.

3.1.2 Top size foundry coke. Unless otherwise specified (see 6.2), there shall be no top size limitation on foundry coke.

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3.2 Type I, foundry coke.

3.2.1 Chemical analysis. Chemical analysis of the sample shall be within the following limits:

	<u>Percent</u>
Fixed carbon, minimum, dry	88.0
Ash, maximum, dry	10.0
Volatile matter, maximum, dry	2.0
Sulfur, maximum, dry	0.8

Moisture content on the as-received basis at time of weighing shall not exceed 2.5 percent.

3.2.2 Shatter resistance. The coke remaining on a 2 inch screen after being subjected to the shatter test specified in 4.4.2.2 shall be a minimum of 85 percent by weight.

3.3 Type II, domestic coke.

3.3.1 Chemical analysis. Chemical analysis of the sample shall be within the following limits:

	<u>Percent</u>
Fixed carbon, minimum, dry	86.0
Ash, maximum, dry	12.0
Volatile matter, maximum, dry	2.0
Sulfur, maximum, dry	2.0

Moisture content on the as-received basis at the time of weighing shall not exceed 8 percent.

3.3.2 Tumbler resistance. The coke remaining on a screen of the applicable lower-limit size (2-inch for egg, 1-1/2-inch for stove, 1/2-inch for nut), after being subjected to the tumbler test specified in 4.4.2.3, shall be a minimum of 80 percent by weight.

3.4 Workmanship. Coke shall be well screened and shall contain no large particles of slate, ashes, or other matter foreign to coke.

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 Classification of inspection. Inspection shall be classified as follows:

- (a) Quality conformance inspection (see 4.3).
- (b) Inspection of preparation for delivery (see 4.5).

4.3 Quality conformance inspection.

4.3.1 Sampling.

4.3.1.1 Chemical analysis sampling. Sampling for chemical analysis shall be in accordance with ASTM D346.

4.3.1.2 Shatter sampling. Sampling of foundry coke (type I) for shatter testing shall be in accordance with ASTM D2640.

4.3.1.3 Tumbler sampling. Sampling of domestic coke (type II) for tumbler testing shall be in accordance with ASTM D294 for egg coke and D2490 for stove and nut coke.

4.3.1.4 Size analysis sampling. Sampling for size analysis shall be in accordance with ASTM D293.

4.3.2 Examination. The coke shall be visually examined in accordance with 4.4.1. Presence of one or more defects shall be cause for rejection.

4.3.3 Tests.

4.3.3.1 Foundry coke (type I). Samples selected in accordance with 4.3.1 shall be tested as specified in 4.4.2.1, 4.4.2.2, and 4.4.2.4. Failure of any test shall be cause for rejection.

4.3.3.2 Domestic coke (type II). Samples selected in accordance with 4.3.1 shall be tested as specified in 4.4.2.1, 4.4.2.3, and 4.4.2.4. Failure of any test shall be cause for rejection.

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#### 4.4 Inspection procedure.

##### 4.4.1 Examination. Coke shall be examined for the following defects:

101. Coke not sound or uniformly coked (see 3.1).
102. Workmanship not as specified (see 3.4).

##### 4.4.2 Tests.

4.4.2.1 Chemical analysis. Chemical analysis shall be in accordance with ASTM D271. Nonconformance to 3.2.1 for foundry coke, or 3.3.1 for domestic coke shall constitute failure of the test.

4.4.2.2 Shatter. Shatter test shall be in accordance with ASTM D2640. Nonconformance to 3.2.2 shall constitute failure of the test.

4.4.2.3 Tumbler. The tumbler test for egg coke shall be in accordance with ASTM D294. Tumbler test for stove and nut coke shall be in accordance with ASTM D2490 except for the following: Stove coke shall be sized by sieving on 2-1/2- and 1-1/2-inch-square-mesh sieves in order to obtain a sample that will pass the 2-1/2-inch sieve and be retained on the 1-1/2-inch sieve and the stove coke shall be sized by sieving on a 1-1/2-inch sieve after tumbling. Nut coke shall be sized by sieving on 1-1/2- and 1/2-inch-square-mesh sieves in order to obtain a sample that will pass a 1-1/2-inch sieve and be retained on a 1/2-inch sieve, and the nut coke shall be sized by sieving on a 1/2-inch sieve after tumbling. Nonconformance to 3.3.2 shall constitute failure of this test.

4.4.2.4 Size analysis. Size analysis shall be in accordance with ASTM D293. Nonconformance to 3.1 shall constitute failure of the test.

4.5 Inspection of preparation for delivery. The shipment of coke shall be inspected to assure the number of units are as required and marking is in accordance with MIL-STD-129 or Fed. Std. No. 123, as applicable.

#### 5. PREPARATION FOR DELIVERY

5.1 Packing. Coke shall be packed or delivered in short ton (2,000 pounds), metric ton (2,204 pounds), long ton (2,240 pounds), or other standard commercial units or multiples thereof as specified, to the destination in a manner specified in the contract or order which will be acceptable to the carrier at lowest rates and which will insure satisfactory delivery of the coke. Shipment shall comply with Uniform Freight Classification rules or National Motor Freight Classification rules.

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## 5.2 Marking.

5.2.1 Military agencies. Marking for shipment and storage shall be in accordance with MIL-STD-129.

5.2.2 Civil agencies. Marking for shipment shall be in accordance with Fed. Std. No. 123.

## 6. NOTES

6.1 Intended use. Type I coke is intended for cupola melting where the high test grade of iron is required, and for general foundry and metallurgical purposes. Type II coke is intended for use as a fuel in stoves, heating boilers and furnaces, forges, and kettles.

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

- (a) Title, number, and date of this specification.
- (b) Type and size number of coke required (see 1.1).
- (c) Top size limitation for foundry coke when required (see 3.1.2).
- (d) Unit of purchase required (see 5.1).

6.3 Federal specifications do not include all types, classes, grades, sizes, etc., of the commodities indicated by the titles of the specification, or which are commercially available, but are intended to cover the types, etc., which are suitable for Federal Government requirements.

6.4 Screen size limits for domestic coke should be specified to fit sizes obtainable in the local markets.

### MILITARY INTEREST:

#### Custodians:

Army - ME  
Air Force - 68

#### Preparing activity:

Army - ME

#### Review activity:

Army - CE

Project No. 9110-0006

#### User activity:

Navy - SA

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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 10 cents each.