

QQ-N-301C  
November 10, 1972  
SUPERSEDING  
Fed. Spec. QQ-N-301B  
September 27, 1963

FEDERAL SPECIFICATION  
NICKEL ALLOYING ADDITIVE (OR FOR REMELTING)

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. Nickel covered by this specification is primarily an alloying additive addition to ferrous and non-ferrous melts.

1.2 Classification. Nickel shall be furnished in the following types and sizes, as specified (see 6.2):

- Type I - Electrolytic cathodes.
  - Sizes - Approx. 3/8 inch thick by 1 inch square.
  - Approx. 3/8 inch thick by 2 inches square.
  - Approx. 3/8 inch thick by 4 inches square.
  - Approx. 3/8 inch thick by 9 inches square.
- Type II - XX Shot.
  - Size - One inch on 0.053 inch screen.
- Type III - Ingot.
  - Size - Two inches on 0.053 inch screen.
- Type IV - Tablets.
  - Size - Two inches on 0.053 inch screen.
- Type V - Pellets.
  - Size - One quarter inch of .053 inch screen.
- Type VI - Disc
  - Size - One and one quarter inch in diameter and three quarter inch thick.

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 Standards:

- Fed. Std. No. 123 - Marking for Domestic Shipment (Civil Agencies).
- Fed. Test Method Std. No. 151 - Metals, Test Methods.

(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 Specification:

- MIL-N-3944 - Non-ferrous Products (other than Aluminum, Magnesium, Copper, or their Alloys) Packaging of.

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Military Standards:

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.  
 MIL-STD-129 - Marking for Shipment and Storage.

(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 the 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.

National Motor Freight Traffic Association, Incorporated, Agent:

National Motor Freight Classification.

(Application for copies should be addressed to the National Motor Freight Traffic Association, Inc., Agent, 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, Tariff Publishing Officer, Room 202 Union Station, 516 W. Jackson Blvd., Chicago, IL 60606.)

(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 Material. Nickel shall be processed from ore or matte, or similar raw material by refining processes, and shall not be produced from remelted metal.

3.2 Nickel. Shall be relatively free from adhering foreign material and reasonably free from surface oxidation.

3.3 Chemical composition. Nickel cathode, XX shot, tablets, ingot, pellets and discs shall conform to the requirements in Table I.

TABLE I. Chemical requirements

Type	Elements percent			
	Nickel, including cobalt	Sulfur	Carbon	Iron
	Min.	Max.	Max.	Max.
Type I, cathodes.....	99.50	0.02	0.10	0.25
Type II, XX shot and Type IV, tablets	98.90	0.05	0.25	0.60
Type III, ingot.....	98.50	----	----	----
Type V, pellet.....	99.90	0.01	0.05	0.01
Type VI, disc.....	99.50	0.02	0.10	0.25

3.4 Identification marking. The manufacturer's name or brand, and melt or batch number shall be legibly and indelibly marked on each cathode, ingot, disc or container.

## 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 commercial laboratory 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.

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4.2 Sampling. The sample size levels of inspection shall be in accordance with MIL-STD-105.

4.2.1 Lot. Unless otherwise specified (see 6.2), a lot shall consist of all nickel of the same type submitted for inspection at the same time.

4.2.2 Sampling for examination of packing. Packed cathodes, ingot, tablets, shot, pellets and discs, ready for shipment, shall be sampled in accordance with inspection level I.

4.2.3 Sampling for visual examination of end items. Sampling of cathodes, ingot, tablets, shot, pellets and discs for visual examination shall be in accordance with inspection level S4.

4.2.4 Sampling for tests.

4.2.4.1 Shot, tablets, and pellets. At least 4 ounces (approximately 125 grams) shall be sampled for every 150 pounds from 10 percent of the containers in each lot.

4.2.4.2 Ingots, cathodes and discs. One sample shall be selected from each 5000 pounds or fraction thereof of metal.

4.3 Inspection and tests. The acceptable quality levels (AQL's) shall be in accordance with MIL-STD-105.

4.3.1 Inspection. Packed shipping containers and nickel selected in 4.2.2 and 4.2.3 shall be examined in accordance with table II. The AQL's for defects listed in table II shall be 2.5 percent defective for major defects and 4.0 percent defective for minor defects.

TABLE II. Classification of defects			
Examine	Defects	Major	Minor
End item	Adhering foreign material on cathodes, and ingots.	X	
	Foreign material in shot, tablets, pellets and discs.	X	
	Identification marking, missing, or illegible.		X
Shipping container	Not type and strength specified.	X	
	Inadequate closure.	X	
	Not strapped (when required).	X	
	Exceeds weight limit.		X
	Marking missing incorrect, illegible, or in wrong direction.		X

4.3.2 Lot acceptance tests. Samples selected in accordance with 4.2.4 shall be subjected to the tests in 4.4, AQL 6.5 percent defective.

4.4 Test.

4.4.1 Chemical. The procedure for chemical analysis shall be in accordance with method 111 or 112 of Fed. Test Method Std. No. 151.

4.5 Inspection of preparation for delivery. The packing and marking of rolls shall be inspected to determine conformance to the applicable requirements in section 5.

## 5. PREPARATION FOR DELIVERY

5.1 Packing. Packing shall be level A, B, or C, as specified (see 6.2).

5.1.1 Level A. Nickel of like type and description shall be packed in accordance with the level A requirements of MIL-N-3944.

5.1.2 Level B. Nickel of like type and description shall be packed in accordance with the level B requirements of MIL-N-3944.

5.1.3 Level C. Nickel of like type and description shall be packed, to insure carrier acceptance and safe delivery, in containers conforming to the rules and regulations applicable to the mode of transportation.

5.2 Marking.

5.2.1 Civil agencies. In addition to any special marking required by the contract or order, shipping containers shall be marked in accordance with Fed. Std. No. 123.

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5.2.2 Military agencies. In addition to any special marking required by the contract or order, shipping containers shall be marked in accordance with MIL-STD-129.

## 6. NOTES

6.1 Intended use. The six types of nickel are used as alloying additions to iron, steel and nonferrous melts; and as the principle element in pure nickel castings.

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 of nickel required (see 1.2 and table I).
- (c) Size of cathodes, shot, ingots, tablet, pellets and discs when required (see 1.2).
- (d) Size of lot, if different from 4.2.1.
- (e) Level of packing required (see 5.1).

6.3 Transportation description. The transportation descriptions and minimum weights applicable to this commodity are:

### Cathodes and Ingots:

#### Rail:

Nickel, cathodes, ingots, shot, tablets, pellets and discs. Carload minimum weight 30,000 pounds.

#### Motor:

Nickel, cathodes, ingots, shot, tablets, pellets and discs. Truckload minimum weight 30,000 pounds, subject to Rule 115, National Motor Freight Classification.

### MILITARY CUSTODIAN:

Air Force - 84

### Preparing activity:

GSA-FSS

### Review Activities:

Army - MR  
Navy - OS

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Orders for this publication are to be placed with the 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.