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	cy 2 of manual for Receiving Essential materials			

To Be Returned by Mr. Goshorn

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INCORPORATED

P. O. Box 100 RICHLAND, WASHINGTON

EXPLOSIVES DEPARTMENT—TNX

Copies #1, , #3 - The Area Engineer:  
Attn: Capt. M.K. Barrett

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December 3, 1945

THE AREA ENGINEER  
HANFORD ENGINEER WORKS

THIS DOCUMENT CONSISTS OF 7 PAGES NO. 1  
OF 1 COPIES, SERIES 1  
*plus attach.*

ATTENTION: CAPT. M. K. BARRETT

MANUAL FOR RECEIVING ESSENTIAL MATERIALS

Transmitted herewith are copies #23 and #24 of the manual dated September 1945 containing the procedures for receiving essential materials.

*B. H. Mackey*  
B. H. MACKEY, REMAKER  
HANFORD ENGINEER WORKS

CPH:ia



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# INTER-OFFICE MEMORANDUM

To: CAPT. M. K. BARRETT, (COPIES #23, 24)

Date OCTOBER 29, 1945

Subject REVISION - UNRECORDED PROCEDURES FOR  
RECEIVING ESSENTIAL MATERIALS. -  
EXCERPT 3-2177

**DECLASSIFIED**

Please insert the attached revisions, in your copy of the Manual "Standard Procedures for Receiving Essential Materials", and return the following deleted pages to the writer at Building 3700.

<u>Page</u>	<u>Subject</u>	<u>Revised</u>
50	Nitric Acid - 200 .res	

G. W. SANDERS, CHIEF SUP'V.  
LABORATORIES DIV., TECH. DEPT.

*E. C. Morris*

kw

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September 27, 1945

**DECLASSIFIED**

SUBJECT: MANUAL FOR RECEIVING ESSENTIAL MATERIALS

The attached Manual For Receiving Essential Materials is an attempt to establish a means for obtaining materials of necessary quality for use at HEW. Accordingly, the specifications set forth therein are those applicable at the date of writing and are subject to change. It is expected that numerous changes will be recommended in view of additional experience that has been gained with various materials. Such recommended changes should be made by memorandum to the department head of the Area using the material and to the Technical Superintendent's Office, in accordance with procedure outlined in the Introduction. Revised specifications, analytical methods, etc. will be issued, if the required approval is granted.

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G. W. STRUIHERS, CHIEF SUP'V.  
 LABORATORIES DIV., TECH. DEPT.

per E. C. Morris  
 E. C. Morris, Area Supervisor

DATE: 11/1/77

**DECLASSIFIED**

TO: Capt. M. K. Barrett (copy 23 and 24)

SUBJECT: REVISION - STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS - DOCUMENT 3-3177

Please insert the attached revisions, in your copy of the Manual, "Standard Procedures For Receiving Essential Materials", and return the following deleted pages to the writer at building 3706.

<u>Pages</u>	<u>Subject</u>	<u>Remarks</u>
23	REVISION TO PROC. FOR RECV. ESSENTIAL MATS	
24	REVISION TO PROC. FOR RECV. ESSENTIAL MATS	

G. W. STRUTHERS, CHIEF SUP'V.  
LABORATORIES DIV., TECH. DEPT.

Per *G. W. Struthers*

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TW-3 3177

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By Authority of RLO-CG-4

C.A. BAUMAN/PNL-CO 4-30-91

By C. MASON 5/10/91  
PM Eck 1-19-99

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HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING

ESSENTIAL MATERIALS

PREPARED BY

DU PONT TECHNICAL DEPARTMENT

LABORATORIES DIVISION

SEPTEMBER 1945

COPY NO. 23

ISSUED TO: Capt. M.K. Barrett

This Document consists of  
4 Pages No. 2 of

~~RESTRICTED PAGES~~  
~~PNL 5 UN-CLASSIFIED PAGES~~

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~~5/10/91~~

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P R E F A C E

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STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

1. **Manuals:** The subject manuals are issued by the Laboratories Division of the Technical Department. This Division will be responsible for distribution of the manuals, making authorized revisions, editing, etc. For information with respect to the manuals, please address any communications to Chief Supervisor, Laboratories Division, Building 3706.
2. **Purpose:** These procedures are presented for the purpose of standardizing the methods of receiving and accepting Essential Materials purchased for use on this Works.
3. **Specifications:** The specifications given herein are those applicable at the date of writing and are subject to change.
4. **Tests:** The constituents listed under this heading are those which are actually checked by analysis. The analyses performed are subject to change as additional experience is gained.
5. **Sampling:** All Essential Materials are sampled by a representative of the department which uses the material. The necessary containers can be procured from the laboratory to which the sample is delivered. Sampling shall be made in accordance with the procedures set forth in the manual titled "Sampling Methods and Sample Summaries".

Hanford Engineer Works  
September, 1945

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ANALYTICAL REPORTS

The original individual analytical work reports are filed in the Laboratories Division Office, Building 3706.

A daily summary of analyses on Essential Materials will be issued by the Laboratories Division of the Technical Department. Copies of this report are distributed at the present time, as follows:

<u>No. of Copies</u>	<u>Office</u>
1	Area Engineer
1	Essential Material Control
3	Accounts Payable
1	"S" Superintendent
1	"P" Superintendent
1	Power - Field Office
1	Technical - Power Superintendent
1	Laboratories Division - File

This summary includes a positive statement to the effect that materials comply with specifications; where specifications are not met, the specific items wherein there is non-compliance are set forth definitely.

Where Essential Materials do not meet specification requirements they will be rejected except where prior approval for use is obtained as outlined under "Out-of-Specification Materials" p. VII. If such approval is obtained, it will be stated that the material is acceptable for use, otherwise it will be stated that it is rejected.

Hanford Engineer Works  
September, 1945

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OUT-OF SPECIFICATION MATERIAL

If any material fails to meet specifications, the Laboratories Division will notify the Technical Superintendent and the Superintendent of the consuming Area. The material will not be used unless it is necessary, and unless there is dual approval by these two offices. Said approval may be obtained orally in order to make necessary material available, but in each case, a written statement signed by both offices to the effect that the material is deemed suitable for use, even though specifications are not met, will be obtained. The origination of this memorandum shall be the responsibility of the Laboratories Division - Technical Department. The completed form will comprise part of their file records.

In the absence of the above approval, the material will be rejected.

Where numerous shipments are on the lower limits of quality or below specifications, the Laboratories Division will supply the Accounting Department with this information in order that the Control Division in Wilmington can be advised and a formal complaint made to the vendor.

Hanford Engineer Works  
September, 1945

3 3177

REVISIONS

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~~REVISIONS~~

Recommendations for revision to specifications on Essential Materials must be sent to the offices of the Technical Superintendent and the interested Operating Area Superintendent, as well as to the Laboratories Division of the Technical Department (Att: Chief Supervisor, Building 3706). The copy sent to the Laboratories Divisions will be used for approval signatures of the above offices, and will be the authority for issuance of revisions to the Essential Material Manual. No changes in existing specifications will be made without the dual approval of these offices.

Hanford Engineer Works  
September, 1945

3 3177

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HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Acenapthene - 300 Area

1. Specification: HEW Specification #301
  - a) Melting point 92.5 - 95.000
2. Test for:
  - a) Melting Point
  - b) Solubility
3. Sampling: An 8 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.
4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved J. J. [Signature]  
Date 9/26/45

Approved \_\_\_\_\_  
Date \_\_\_\_\_  
Benjamin [Signature]  
9/26/45

3 3177

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HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Alum, Commercial Grade, 100 Area

1. Specifications: None
2. Test for: Analyzed on request only
3. Sampling: A 16 oz. sample shall be delivered to the Essential Material Laboratory, Building 3706 with each request for analyses.

E. I. du Pont de Nemours  
Technical Superintendent

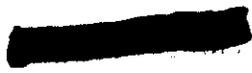
Corps of Engineers  
Chief of Production

Approved *[Signature]*

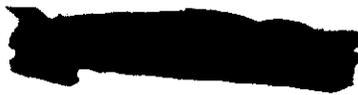
Approved \_\_\_\_\_

Date *4/24/45*

Date \_\_\_\_\_  
*Benjamin T. Rogness*  
*1/26-45-1*



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Section -3-

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HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Aluminum - 300 Area

1. Specification: HEW Specification #302

- a) Copper 0.20% Max.
- b) Iron 0.50% Max.
- c) Manganese 0.03% Max.
- d) Magnesium 0.03% Max.
- e) Zinc 0.03% Max.
- f) Nickel 0.03% Max.
- g) Tin 0.03% Max.
- h) Acid Insoluble (Reported as Si) 0.10% Max.

2. Test for:

- a) Copper
- b) Iron
- c) Manganese\*
- d) Magnesium\*
- e) Zinc\*
- f) Nickel\*
- g) Tin\*
- h) Acid Insoluble (Reported as Si)

\*Analysis for these constituents to be made on a composite sample from every five consecutive shipments received.

If analysis of the composite indicate the material to be out -of- specifications, each individual sample in the composite will be analyzed separately.

3. Sampling: Three ingots or bars from each lot shall be delivered to the Essential Material Laboratory Building 3706.

Rev. 6/1/46

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- 4. Allowable Tolerance: None
- 5. Revision #1, June 1, 1946.

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E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved *N. C. Ray*

Approved *George E. Williams*

Date *6/1/46*

Date *1 June 1946*

00. 6/1/46



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HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Aluminum Cans - 300 Area

**DECLASSIFIED**

1. Specification: HEW Specification # 303

- a) Copper 0.20% Max.
- b) Iron 0.50% Max.
- c) Manganese 0.03% Max.
- d) Magnesium 0.03% Max.
- e) Zinc 0.03% Max.
- f) Nickel 0.03% Max.
- g) Tin 0.03% Max.
- h) Acid Insoluble (Reported Si) 0.10% Max.

2. Test for:

- a) Copper
- b) Iron
- c) Manganese\*
- d) Magnesium\*
- e) Zinc\*
- f) Nickel\*
- g) Tin\*
- h) Acid Insoluble (Reported as Si)

\*Analysis for these constituents to be made on a composite sample from every five consecutive shipments received.

If analysis of the composite indicate the material to be out -of- specifications, each individual sample in the composite will be analyzed separately.

3. Sampling: Three cans from each shipment or lot shall be submitted to the Essential Material Laboratory, Building 3706.



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4. Allowable Tolerance: None

5. Revision #1, June 1, 1946

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E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved *E. C. Kay*

Approved *W. J. ...*

Date 6/7/46

Date June 1946

Rev. 6/1/46



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Section -5-

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HANFORD ENGINEER WORKSSTANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALSAluminum Caps - Boss Type - 300 Area**DECLASSIFIED**

## 1. Specification: HEW Specification # 304

a) Copper	0.20% Max.
b) Iron	0.50% Max.
c) Manganese	0.03% Max.
d) Magnesium	0.03% Max.
e) Zinc	0.03% Max.
f) Nickel	0.03% Max.
g) Tin	0.03% Max.
h) Acid Insoluble (Reported as Si)	0.10% Max.

## 2. Test for:

- a) Copper
- b) Iron
- c) Manganese\*
- d) Magnesium\*
- e) Zinc\*
- f) Nickel\*
- g) Tin\*
- h) Acid Insoluble (Reported as Si)

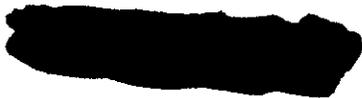
\*Analysis for these constituents to be made on a composite sample from every five consecutive shipments received.

If analysis of the composite indicate the material to be out -of- specifications, each individual sample in the composite will be analyzed.

3. Sampling: Three caps from each shipment or lot shall be delivered to the Essential Material Laboratory, Building 3706.

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4. Allowable Tolerance: None

5. Revision #1, June 1, 1946.

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E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved: *E. I. du Pont*  
Date 6/7/46

Approved *Henry C. Spencer*  
Date 10 June 1946



HANFORD ENGINEER WORKSSTANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALSAluminum Caps - Detail B - 300 Area**DECLASSIFIED**

## 1. Specifications: HEW Specifications # 305

a) Copper	0.20% Max.
b) Iron	0.50% Max.
c) Magnesium	0.03% Max.
d) Manganese	0.03% Max.
e) Zinc	0.03% Max.
f) Nickel	0.03% Max.
g) Tin	0.03% Max.
h) Acid Insoluble (Reported as Si)	0.10% Max.

## 2. Test for:

- a) Copper
- b) Iron
- c) Magnesium\*
- d) Manganese\*
- e) Zinc\*
- f) Nickel\*
- g) Tin\*
- h) Acid Insoluble (Reported as Si)

\*Analysis for these constituents to be made on a composite sample from every five consecutive shipments received.

If analysis of the composite indicate the material to be out -of- specifications, each individual sample in the composite will be analyzed separately.

3. Sampling: Three caps from each shipment or lot shall be delivered to the Essential Materials Laboratory, Building 3706.

- 4. Allowable Tolerance: None
- 5. Revision # 1, June 1, 1946

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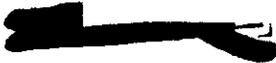
E. I. duPont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved *M. C. Ray*  
Date 6/7/46

Approved *[Signature]*  
Date 10 June 1946





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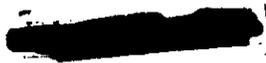
STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIAL

Aluminum - Silicon - 300 Area

3 31/77  
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2. Test for:

- a) Silicon
- b) Copper
- c) Iron
- d) Manganese
- e) Magnesium
- f) Zinc
- g) Nickel
- h) Tin
- i) Aluminum (by difference)



3 3177

3. Sampling: Three ingots or bars from each shipment shall be delivered to the Essential Material Laboratory, Building 3706.

4. Allowable Tolerance: None

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E. I du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved L. Squier

Approved \_\_\_\_\_

Date 7/26/45

Date \_\_\_\_\_

Benjamin R. Rogers  
9/26-45

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STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Ammonium Silico Fluoride (Ammonium Fluosilicate) 200 Area

1. Specifications: HEW Specification #28
  - a) Ammonium Silico Fluoride 98.0% Min.
  - b) Water Insolubles 0.30% Max.
2. Test for:
  - a) Ammonium Silico Fluoride
  - b) Water Insolubles
3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.
4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

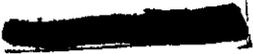
Corps of Engineers  
Chief of Production

Approved J. K. Quinn

Approved Benjamin S. Rogers

Date 9/26/45

Date 9/26/45



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STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Argon - 300 Area

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1. Specifications: Contract #1, Expires 3/1/46
  - a) Must pass "use" test.
2. Test for:
  - a) Must pass "use" test as applied by Production department
3. Sampling: Each cylinder is tested by trying it for its intended use.
4. Allowable Tolerance - The material must be suitable for its intended use.

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved [Signature]

Approved \_\_\_\_\_

Date 9/26/45

Date \_\_\_\_\_  
Benjamin Royce  
9/26-45





HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

3 3172  
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Barium Chloride, Powdered - 300 Area

1. Specifications: HEW Specification #308

- a) Insolubles 0.010% Max.
- b) Alkali Salts as SO<sub>4</sub> 0.050% Max.
- c) Strontium & Calcium Chlorides 0.01% Max.
- d) Nitrate and Chlorate to pass test
- e) Heavy Metals to pass test

2. Test for:

- a) Insolubles
- b) Alkali Salts as SO<sub>4</sub>
- c) Strontium & Calcium Chlorides
- d) Nitrate & Chlorate ACS test '41 p35
- e) Heavy Metals ACS test '41 p35

3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.

4. Allowable Tolerances: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved L. Squires

Approved \_\_\_\_\_

Date 4/26/45

Date \_\_\_\_\_

*Benjamin S. Royce*  
19/26-45-1

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HANFORD ENGINEER WORKS

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STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Bismuth Subnitrate - 200 Area

1. Specification: Contract #17, Expires 8/31/45
  - a)  $\text{Bi}_2\text{O}_3$  79% Min.  
(Bi) 71% Min.)
  - b) Contract carries specification test procedures
2. Test for: \*
  - a) Bi
  - b) Chlorides
  - c) Nitric Acid Insoluble
  - d) Hydrochloric Acid Insolubles

\* Testing procedures must duplicate those in contract.
3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.
4. Allowable Tolerance: None

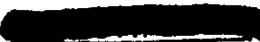
E. I. du Pont de Nemours  
 Technical Superintendent  
 Approved *E. I. du Pont*  
 Date 9/26/45

Corps of Engineers  
 Chief of Production  
 Approved *Benjamin T. Keyser*  
 Date 9/26-45



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3 3177



HANFORD ENGINEER WORKS

**DECLASSIFIED**

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS WITH DELETIONS

Bronze - 300 Area

2. Test for:

a) Copper

b) Tin

3. Sampling: Three ingots or bars from each shipment or lot shall be delivered to the Essential Material Laboratory, Building 3706.

4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved L. J. Quinn

Approved \_\_\_\_\_

Date 9/26/45

Date \_\_\_\_\_

Benjamin Royce  
9/26-45



HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

**DECLASSIFIED**  
**WITH DELETIONS**

Calcium Chloride (Anhydrous) - 300 Area

1. Specifications: HEW Specification # 331
  - a) Calcium Chloride 94.0% Min.
  - b) Water Insolubles 0.20% Max.
2. Test for:
  - a) Calcium Chloride
  - b) Water Insolubles
3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Materials Laboratory, Building 3706.
4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved \_\_\_\_\_

Approved \_\_\_\_\_

Date 6/7/46

Date 6/7/46

6/7/46



(1)

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HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

**DECLASSIFIED**  
**WITH DELETIONS**

Carbon Tetrachloride - 300 Area

1. Specifications: HEW Specification #310
  - a) Boiling range @ 760 mm      75.0° : - 77.5° ..
  - b) Acid                              Neutral to methyl red
  - c) Residue                          0.002% Max.
  - d) Appearance                    Clear, colorless, no suspended material
  
2. Test for:
  - a) Boiling range
  - b) Residue
  - c) Appearance
  
3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.
  
4. Allowable Tolerance:    \* Boiling range      73.0° C Min.
  
5. Revision #1, January 18, 1946.  
Revision #2, November 1, 1946.

General Electric Company  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved

*Alb. Greeninger*

Date

11-1-46

Approved

*[Signature]*

Date

11-6-46

3 3177



HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

**DECLASSIFIED**  
**WITH DELETIONS**

Ceric Ammonium Nitrate - 200 Area

1. Specifications: HEW Specification #3
  - a) Ceric Ammonium Nitrate 90.0% Min.
  - b) Chlorides 0.01% Max.
  - c) Nitric Acid Insoluble 0.30% Max.
2. Test for:
  - a) Ceric Ammonium Nitrate
  - b) Chlorides
  - c) Nitric Acid Insolubles
3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.
4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved *L. James*

Approved *B. R. ...*

Date *9/26/45*

Date *9/24/45*



STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

**DECLASSIFIED**  
**WITH DELETIONS**

Chlorine, Commercial Grade - 100 & 200 Areas

1. Specifications: Contract #28, Expires 7/31/46
  - a) Chlorine 99.996% Min.
  - b) Non Volatile 0.004% Max.
  - c) Copper 0.0001% Max.
  - d) Iron 0.0015% Max.
2. Test for: To be analyzed on request only.
3. Sampling: Due to the safety hazards involved no routine samplings are taken..
4. Allowable Tolerance
 

Chlorine	99.9% Min.
----------	------------

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved *L. Spitzer*

Approved \_\_\_\_\_

Date *7/26/45*

Date \_\_\_\_\_

*Benjamin T. Rogers*  
*7/26-45*

HANFORD ENGINEER WORKS

3177

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

**DECLASSIFIED**  
**WITH DELETIONS**

Copper - 300 Area

1. Specifications: HEW Specification #311
  - a) Copper 99.90% Min
2. Test for:
  - a) Copper
3. Sampling: Three ingots or bars from each shipment or lot shall be delivered to the Essential Material Laboratory, Building 3706.
4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved J. Rogers

Approved \_\_\_\_\_

Date 7/26/45

Date \_\_\_\_\_

Benjamin Rogers  
7/26-45



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3 3177

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

**DECLASSIFIED**  
WITH DELETIONS

COAL - ALL AREAS

- 1. Specifications: None
- 2. Test for:
  - a) Moisture
  - b) Volatile Matter \*
  - c) Fixed Carbon \*
  - d) Ash \*
  - e) Sulfur \*
  - f) Heating value in BTU \*

\* Results calculated on dry basis

3. Sampling: (a) On long term contracts every tenth car from each vendor is sampled. This sampling frequency also applies to coal secured on "spot purchases" except where it is used for test purposes in which event samples are taken more frequently.

(b) For each car sampled an 8 oz sealed bottle of 60 mesh coal and a five pound "as received" sample shall be delivered to the Essential Material Laboratory, Building 3706.

4. Remarks: (a) Analytical results are reported on a dry basis where indicated.

(b) The average analyses of coal supplied from each source must approximate the "typical analysis" set forth in the contract for each respective vendor.

(c) Contract giving "typical analysis" are now in effect with the following vendors:

Sheridan Wyoming - Contract #41, Expires 6/30/46  
Big Horn - Contract #36, Expires 6/30/46

E. I. du Pont de Nemours  
Technical Superintendent

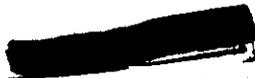
Corps of Engineers  
Chief of Production

Approved [Signature]

Approved [Signature]

Date 5/19/45

Date 9/6/45 <sup>May</sup> CE



3 3177

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

**DECLASSIFIED**  
WITH DELETIONS

Coal - Village

- 1. Specifications: None
- 2. Test for:
  - a) Moisture
  - b) Volatile Matter\*
  - c) Fixed Carbon\*
  - d) Ash \*
  - e) Sulfur\*
  - f) Heating Value in BTU\*

\*Results calculated on dry basis

- 3. Sampling: A sample shall be taken from the pile equivalent to every tenth car or once a week, whichever is less, and shall be delivered to the Essential Material Laboratory, Building 3706.

Increments of one shovelfull each shall be taken at equidistant points around the circumference of the pile about midway from the top to the bottom until ten shovelfulls have been separated. Three large lumps shall be added to this amount and the entire quantity reduced to 1/2" size. This "gross sample" shall be quartered until approximately ten pounds of coal remains for delivery to the laboratory.

- 4. Remarks: (a) Analytical results are reported on a dry basis where indicated.
- (b) The laboratory will conduct the final preparation of the sample for analysis.

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved *A. Depires*

Approved *Sanjant 1/10/45*

Date *9/26/45*

Date *9/26-45*

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

**DECLASSIFIED**  
~~WITH DELETIONS~~

Duponol, M3 Dry - 300 Area

1. Specifications: None

2. Test for:

Material analyzed on request only.

3. Sampling:

A 16 oz. sample shall be delivered to the Essential Material Laboratory, Building 3706 with each request for analysis.

4. Remarks:

Tests are run on this material for identification purposes only.

5. Revision #1 November 1, 1946

General Electric Company  
Technical Superintendent

Approved *Al B. Feninger*

Date 11-1-46

Corps of Engineer  
Chief of Production

Approved *Harvey E. Skinner*

Date 11-6-46

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALSFerric Sulfate (Ferrifloc) - 100 Area

1. Specification: Contract #605, Expires 10/31/45

"Typical Analysis" as given in contract"

a) $\text{Fe}(\text{SO}_4)_3$	75% (72% Min)
b) $\text{Fe SO}_4$	0.8%
c) $\text{Si O}_2$	0.7%
d) Other insolubles	3.0% ) 5% Max.
e) Calcium	0.25%
f) Magnesium	0.08%
g) Alumina	0.30% ) 0.5% Max.
h) Copper	0.05%
i) Zinc	0.08%
j) Lead	0.07%
k) Water of crystallization	12.2%
l) Remaining water of crystallization	2.0%
m) Sulfates other than iron	4.0%
n) Free acid	1.0%

2. Test for:

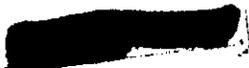
- Total water
- Iron
- Water insolubles

3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 5706.

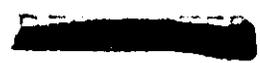
4. Remarks: "Ferrisol" is sometimes purchased in place of "Ferrifloc". See page 19A for description.

**DECLASSIFIED**

~~WITH DELETIONS~~

 **DECLASSIFIED** ~~WITH DELETIONS~~

3 317



5. Allowable Tolerance:

- a) Total water 14.5% Max.
- b) Iron 20.4% Min
- c) Water insolubles 11.0% Max.

**DECLASSIFIED**  
**WITH DELETIONS**

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved L. Squier

Approved \_\_\_\_\_

Date 9/26/45

Date \_\_\_\_\_

*Benjamin S. Rogers*  
*9/26-45*



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3 31/45

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Ferric Sulfate (Ferrisol) - 100 Area

**DECLASSIFIED**  
**WITH DELETIONS**

- 1. Specification: Contract #605, Expires 10/31/45

This material is purchased under the same contract to supplement the supply of "Ferrifloc" and is acceptable for use if it meets the requirements set forth in paragraph 4.

- 2. Test for:

- a) Total Water
- b) Iron
- c) Water Insolubles

- 3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.

- 4. Allowable Tolerance:

- a) Total Water 1.0% Max.
- b) Iron 25.0% Min
- c) Water insolubles 11.0% Max.

E. I. du Pont de Nemours  
Technical Superintendent

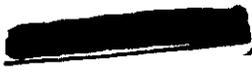
Corps of Engineers  
Chief of Production

Approved [Signature]

Approved [Signature]

Date 9/26/45

Date 9/24/45





HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Fluosilicic Acid - 500 Area

**DECLASSIFIED**  
~~WITH DELETIONS~~

1. Specification: HEW Specification #312

- a) Grade CP or reagent grade
- b) Assay as  $H_2SiF_6$  20-30%
- c) Non Volatile 0.25% Max.
- d) Chlorides 0.02% Max.
- e) Sulfates 0.05% Max.

2. Test for:

- a) Assay as  $H_2SiF_6$
- b) Non Volatile
- c) Chlorides
- d) Sulfates

3. Sampling:

A 1 lb. sample in the original container from each shipment shall be delivered to the Essential Material Laboratory, Building 3706.

4. Allowable Tolerance:

5. Revision #1 November 1, 1946

General Electric Company  
Technical Superintendent

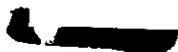
Corps of Engineers  
Chief of Production

Approved *AB Younger*

Approved *Harry E. ...*

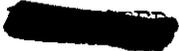
Date 11-1-46

Date 11-6-46



ORD ENGINEER WORKS





HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Hydrofluoric Acid - 300 Area

**DECLASSIFIED**  
**WITH EXEMPTIONS**

1. Specification: None

2. Test for:

Material analyzed on request only.

3. Sampling:

Due to the safety hazards involved, no samples are taken.

4. Remarks:

Samples may be submitted for analysis upon special request.

5. Revised: 10-30-46

General Electric Company  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved W.B. Greninger

Approved Harvey J. Stinner

Date 11-1-46

Date 11-6-46



3 3177

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Hydrogen Fluoride - 200 Area

1. Specification: None
2. Test for: Not analyzed
3. Sampling: Due to the safety hazards involved, no samples are taken.

**DECLASSIFIED**

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved [Signature]

Approved \_\_\_\_\_

Date 7/26/45

Date [Signature] 10/20-46

REIVING ESSENTIAL MATERI

[Redacted]

DECLASSIFIED [Redacted]

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

CLASSIFIED

Hydrogen Peroxide - 200 Area

**DECLASSIFIED**  
WITH DELETIONS

1. Specification: HEW Specification #24

a) Hydrogen peroxide - 27.5% Min.

b) Iron 0.5 ppm

2. Test for:

a) Hydrogen peroxide

b) Iron

3. Sampling: A 16 oz. sample from each shipment shall be delivered to the Essential Material Laboratory, Building 3706.

4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved [Signature]

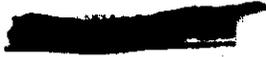
Approved \_\_\_\_\_

Date 7/26/45

Date \_\_\_\_\_

Benjamin Rogerson  
7/26-45

~~\_\_\_\_\_~~



HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

5 3177

Hydromite - 300 Area

1. Specifications: None
2. Test for:
  - a) pH
  - b) Solubility in water
  - c) Chlorides
  - d) Flash Point
  - e) Fire Point
3. Sampling: A 16 oz. sample from each shipment shall be delivered to the Essential Material Laboratory, Building 3706.
4. Remarks: Tests are run on this material for identification purposes only.

**DECLASSIFIED**  
REVISIONS

W.  
E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved [Signature]  
Date 9/26/45

Approved \_\_\_\_\_  
Date \_\_\_\_\_

Benjamin Rogers  
19/26-457



DECLASSIFIED REVISIONS

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

3177

Lanthanum Ammonium Nitrate - 200 Area

**DECLASSIFIED**

1. Specification: Contract #26, Expires 9/30/46

- a) Lanthanum 23.0% Min.
- b) Nitric Acid Insolubles (80°C) 0.10% Max.
- c) Chlorides 0.01% Max.

2. Test for:

- a) Lanthanum
- b) Insolubles
- c) Chlorides

3. Sampling: A 16 oz. sample from each shipment shall be delivered to the Essential Material Laboratory, Building 3706.

4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Eng  
Chief of Proj

Approved J. Devine

Approved \_\_\_\_\_

Date 9/26/45

Date \_\_\_\_\_

Benjamin T. Rogers  
1926-45-1



HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

3 3177

Hydrated Lime, Type A - 100 Area

**DECLASSIFIED**  
~~WITH DELETIONS~~

1. Specifications: HEW Process Specification #107

- a) Lime (CaO) 74.0% Min.
- b) Silica (SiO<sub>2</sub>) 0.25% Max.
- c) Aluminum & Iron Oxides 0.50% Max.
- d) Chlorides 0.03% Max.
- e) Heavy Metals (Pb) 0.03% Max.
- f) Fineness
  - 20 Mesh - 100%
  - 100 Mesh - 99%
  - 200 Mesh - 98%

2. Test For:

- a) Lime (CaO)
- b) Silica (SiO<sub>2</sub>)
- c) Aluminum & Iron oxides
- d) Chloride
- e) Heavy metals (Pb)
- f) Fineness

3. Sampling: A 16 oz. sample from each shipment shall be delivered to the Essential Material Laboratory, Building 3706.

4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved [Signature]

Approved [Signature]

Date 7/2/45

Date 7/26/45



3177

HANFORD

STANDARD PROCEDURE FOR ESSENTIAL MATERIALS

Hydrated Lime, Type B - 100 Mesh

**DECLASSIFIED**  
~~WITH DELETIONS~~

1. Specifications: HEW Specification # 108  
                   Fineness                   20 Mesh - 100%  
   100 Mesh - 95%
2. Test for:  
                   Fineness
3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.
4. Remarks: This material is purchased under Contract #38 which expires 9/30/45. No specifications are entered in the Contract.
5. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

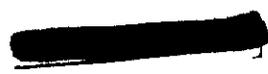
Approved *L. J. [unclear]*

Approved \_\_\_\_\_

Date *9/20/45*

Date \_\_\_\_\_

*Benjamin T. Rogers*  
*11/11/45*



DECLASSIFIED ~~WITH DELETIONS~~

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

DECLASSIFIED WITH DELETIONS

Magnesium - 300 Area

1. Specifications: HEW Specification # 332

- a) Magnesium (Distilled)
- b) Iron • 50 ppm. Max.
- c) Manganese 50 ppm. Max.
- d) Boron 50 ppm. Max.
- e) Cadmium 50 ppm. Max.

2. Test for:

- a) Iron
- b) Manganese
- c) Boron
- d) Cadmium

3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Materials Laboratory, Building 3706.

4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved [Signature]

Approved [Signature]

Date 6/7/46

Date 10 June 1946

6/7/46



HANFORD ENGINEER WORKS

**DECLASSIFIED**

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Methanol, Synthetic - 300 Area

1. Specification: HEW Specification #314

- a) Specific Gravity 0.790 to 0.791 @ 25/25
- b) Boiling Range 64 to 66°C
- c) Residue on Evaporation 0.01% Max.
- d) Color Water clear
- e) Odor Characteristic
- f) Acidity (acetic) 0.005% Max.

2. Test For:

- a) Specific Gravity
- b) Boiling Range
- c) Residue on Evaporation
- d) Color
- e) Odor
- f) Acidity

3. Sampling:

A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.

4. Allowable Tolerance: None

5. Revision #1 November 1, 1946

General Electric Company  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved AB. Greninger

Approved H. W. ...

Date 11-1-46

Date 11-2-46

**DECLASSIFIED**

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIAL

~~WELLINGTONS~~

Metso "99" (or equivalent) - 300 Area

1. Specifications: HEW Specification # 333

a) Water Insolubles 0.20% Max.

b) Boron 250 ppm Max.

2. Test for:

a) Water Insolubles

b) Boron

3. Sampling: A 16 oz sample of each shipment shall be delivered to the Essential Materials Laboratory, Building 3706.

4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

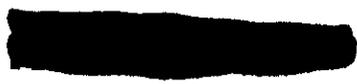
Approved [Signature]

Approved [Signature]

Date 6/7/46

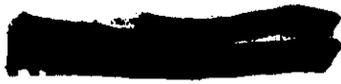
Date 6/7/46

6/7/46



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DECLASSIFIED W ~~ELLINGTONS~~



MANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Nacconal M.R. (or equivalent) - 300 Area

**DECLASSIFIED**  
**WITH DELETIONS**

1. Specifications: HEM Specification # 334
  - a) Water Insolubles 0.20% Max.
  - b) Boron 50 ppm Max.
2. Test for:
  - a) Water Insolubles
  - b) Boron
3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Materials Laboratory, Building 3706.
4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved [Signature]

Approved [Signature]

Date 6/7/46

Date 6/7/46

6/7/46



HANFORD ENGINEER WORKS

**DECLASSIFIED**  
**WITH DELETIONS**

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Nitric Acid - 200 Area

1. Specification: Contract #2, Expires 6/1/46

- a) Nitric Acid 60% Approximately
- b) Nitric Oxides 0.05 % Max.
- c) Chlorides 0.05 % Max.
- d) Residue on Evaporation 0.02 % Max.

2. Test for:

- a) Nitric Acid
- b) Nitric Oxide
- c) Chlorides
- d) Residue on Evaporation

3. Sampling: A 16 oz. sample of each shipment shall be delivered to the appropriate 222 Laboratory Building.

4. Allowable Tolerance: Acid purchased on the above contract may vary from 59 - 63 % HNO<sub>3</sub>. Also different strengths may be specifically indicated on individual purchase requisitions, in which case the concentration as shown by analysis should approximate that recorded on the requisition.

5. Revision #1, October 1945

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved [Signature]

Approved [Signature]

Date 10/15/45

Date 10/15/45

1252

HANFORD ENGINEER WORKS

**DECLASSIFIED**

~~WITH DELETIONS~~

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Nitric Acid - 300 Area

- 1. Remarks : This material is received from the 200 Area bulk storage, and analysis is made in the 200 Area.

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved [Signature]

Approved \_\_\_\_\_

Date 9/26/45

Date \_\_\_\_\_

[Signature]  
9/26-45

**DECLASSIFIED**

~~WITH DELETIONS~~

3 317

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

**DECLASSIFIED**

~~WITH DELETIONS~~

Oxalic Acid - 100 Area

1. Specification: HEW Specification #109
  - a) Oxalic acid ( $H_2C_2O_4 \cdot 2H_2O$ ) 99.5% Min.
  - b) Water Insolubles 0.10% Max.
2. Test for:
  - a) Oxalic acid
  - b) Water insolubles
3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.
4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved *L. J. ...*

Approved *...*

Date 9/20/45

Date 9/26/45



3 3177

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Oxalic Acid - 200 Area

**DECLASSIFIED**  
~~WITH DELETIONS~~

1. Specification: HEW Specification #11

- a) Oxalic Acid  $[(COOH)_2 \cdot 2H_2O]$  99.5% Min.
- b) Water Insolubles 0.05% Max.
- c)  $R_2O_3$  0.05% Max.
- d) Chlorides 0.01% Max.

2. Test for:

- a) Oxalic acid
- b) Water Insolubles
- c)  $R_2O_3$
- d) Chlorides

3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.

4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved J. J. [Signature]

Approved \_\_\_\_\_

Date 9/26/45

Date \_\_\_\_\_

Raymond Rogers  
9/26-45

33-3177

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Potassium Chloride - 300 Area

**DECLASSIFIED**  
~~WITH DELETIONS~~

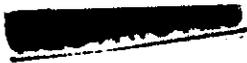
1. Specification: HEW Specification #316

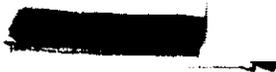
- a) Grade Powdered
- b) Insolubles 0.005% Max.
- c) Neutrality ACS test '41 p. 87
- d) Chlorate & Nitrate
  - ClO<sub>3</sub> 0.001% Max.
  - NO<sub>3</sub> 0.005% Max.
- e) Nitrogen Compounds (N) 0.001% Max.
- f) Phosphates 0.002% Max.
- g) Sulfates 0.006% Max.
- h) Barium ACS Test '41 p. 87
- i) Ca, Mg, & NH<sub>4</sub>OH Precipitate 0.005% Max.
- j) Heavy Metals (Pb) ACS Test '41 p. 87
- k) Iron (Fe) " " "
- l) Sodium " " "

2. Test for:

- a) Grade
- b) Insolubles
- c) Neutrality
- d) Chlorate & Nitrate
- e) Nitrogen Compounds
- f) Phosphates
- g) Sulfates

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3 3177

- h) Barium
- i) Ca, Mg, & NH<sub>4</sub>OH Precipitate
- j) Heavy metals
- k) Iron
- l) Sodium

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~~WITH DELETIONS~~

- 3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.
- 4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved *L. J. ...*

Approved \_\_\_\_\_

Date *9/26/45*

Date \_\_\_\_\_

*Benjamin Roy ...*  
*19/26-45*



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3 3177



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HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

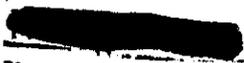
~~WITH DELETIONS~~

Potassium Hydroxide - 200 Area

1. Specification: Contract #40, Expires 6/30/46  
"Typical Analysis" as entered in the contract:

a) KOH (Total alkalinity)	85-86.5%
b) KOH (Actual)	approximately 85%
c) K <sub>2</sub> O (Total alkalinity)	70.5% Min.
d) K <sub>2</sub> CO <sub>3</sub>	1.0%
e) <del>KCl</del> (As Cl)	0.019%
f) NaOH	Trace
g) Fe (guaranteed maximum)	0.005%
h) As	less than 0.05 ppm
i) Pb	Nil
j) SiO <sub>2</sub>	0.005%
k) SO <sub>3</sub>	Trace
l) NO <sub>3</sub>	0.05%
m) CaO + MgO	Nil
n) Ni	Trace
o) Cu	Nil
p) Ba	Nil
q) PO <sub>4</sub>	Nil
r) Mn	0.0002
s) Heavy Metals	0.0002 or less

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**WITH DELETIONS**

2. Test for:

- a) Total  $K_2O$
- b) Iron
- c) Chloride
- d) Water Insoluble

3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.

4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved L. D. Miller

Approved \_\_\_\_\_

Date 9/26/45

Date \_\_\_\_\_  
Roger Rogers  
Pro-As

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3 3177

HANFORD

PKS

STANDARD PROCEDURE FOR ESSENTIAL MATERIALS

Potassium Permanganate - 200 Area

**DECLASSIFIED**  
**WITH DELETIONS**

1. Specification: HEW Specification #26

- a) Potassium Permanganate 99.0% Min
- b) Water Insolubles 0.20% Max.

2. Test for:

- a) Potassium Permanganate
- b) Water Insolubles

3. Sampling: A 16 oz. sample from each shipment shall be delivered to the Essential Material Laboratory, Building 3706.

4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved *S. Aquino*

Approved \_\_\_\_\_

Date *9/26/45*

Date \_\_\_\_\_

*Benjamin T. Rogers*  
*9/26-45*

~~REDACTED~~

DECLASSIFIED WITH DELETIONS

\_\_\_\_\_

HANFORD ENGINEER WORKS

**DECLASSIFIED**

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS WITH DELETIONS

Phosphoric Acid - 300 Area

1. Specification: HEW Specification #317

- a) Phosphoric Acid 85%
- b) Chlorides 0.001% Max.
- c) Iron 0.005% Max.
- d) Sulfate 0.005% Max.
- e) Alkali Phosphates 0.25% Max. (As SO<sub>4</sub>)

2. Test for:

- a) Phosphoric Acid
- b) Chlorides
- c) Iron
- d) Sulfate
- e) Alkali Phosphates

3. Sampling:

A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.

4. Allowable Tolerance: Phosphoric Acid 83.0% Min.

5. Revision #1 November 1, 1946.

General Electric Company  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved AB Greninger

Approved Harvey C. Skinner

Date 11-1-46

Date 11-6-46

**DECLASSIFIED**

HANFORD ENGINEER WORKSSTANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS**DECLASSIFIED**  
~~WITH DELETIONS~~Phosphoric Acid - 200 Area

## 1. Specification: HEW Specification #12

- |   |            |
|---|------------|
| a) Phosphoric Acid ( $H_3PO_4$ )  | 75%        |
| b) Chlorides (as Cl)  | 0.01% Max. |
| c) Iron (as Fe)   | 0.05% Max. |
| d) Material must pass following test:<br>Dilute 10 cc. with 5 cc. of $H_2O$ , add 0.20 cc. of 0.1 N potassium permanganate, heat to boiling, and allow to stand on the steam bath for 10 minutes. The pink color should not be entirely discharged. |            |

The above specifications hold if the material is received in rubber-lined tank cars. In those cases where the material is received in stainless steel tank cars, the following specifications apply.

- |   |            |
|---|------------|
| a) Phosphoric Acid ( $H_3PO_4$ )  | 73.8%      |
| b) Chlorides (as Cl)  | 0.01% Max. |
| c) Iron (As Fe)   | 0.05% Max. |
| d) Material must pass following test:<br>Dilute 10 cc. with 5 cc. of $H_2O$ , add 0.20 cc. of 0.1 N potassium permanganate, heat to boiling, and allow to stand on the steam bath for 10 minutes. The pink color should not be entirely discharged. |            |
| e) Nitric acid ( $HNO_3$ )  | 1.2%       |

## 2. Test for:

- a) Phosphoric Acid
- b) Chlorides
- c) Iron
- d) Reducing Materials
- e) Nitric acid if required.

3. Sampling:

A 16 oz. sample of each shipment shall be delivered to the appropriate 222 Building Laboratory.

4. Allowable Tolerances: Phosphoric Acid -0.5%

5. Revision #1 - November 1, 1946.

**DECLASSIFIED**  
~~WITH DELETIONS~~

General Electric Company  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved *W.D. Jennings*

Approved *Harry Keim*

Date 11-1-46

Date 11-6-46

HANFORD ENGINEER WORKS

3 3177

Standard Procedure for Receiving Essential Materials

Sodium Bismuthate - 200 Area

**DECLASSIFIED**  
~~WITH REFERENCE~~

1. Specification: HEW Specification #15

- a) Sodium Bismuthate 80.0% Min.
- b) Chlorides 0.01% Max.
- c) Insolubles 0.10% Max.

2. Test for:

- a) Sodium Bismuthate
- b) Chlorides
- c) Insolubles

3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.

4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved *S. J. Quinn*

Approved \_\_\_\_\_

Date 9/26/45

Date \_\_\_\_\_

*Raymond V. Rogers*  
9/26-45

DECLASSIFIED ~~WITH REFERENCE~~

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Sodium Carbonate Type A - 100 Area

**DECLASSIFIED**  
~~WITH DELETIONS~~

1. Specification: HEW Specification #106

- a) Sodium Carbonate 98.0% Min.
- b) Iron 0.001% Max.
- c) Water Insolubles 0.10% Max.

2. Test for:

- a) Sodium Carbonate
- b) Iron
- c) Water Insoluble

3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.

4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved *S. J. [Signature]*

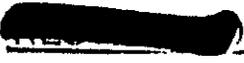
Approved \_\_\_\_\_

Date 9/26/45

Date \_\_\_\_\_

*Benjamin T. Royer*  
*9/26-45*

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HANFORD ENGINEER WORKS

3 3177

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Sodium Carbonate (Soda Ash) Type B - 100 Area

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WITH DELETIONS

1. Specifications: Contract #16 Expires 7/31/46

"Typical analysis" as given in contract:

a) Sodium Carbonate	99.65%
b) Iron	6 ppm
c) Water insolubles	0.01%
d) $Na_2B_4O_7$	0.10%
e) $Na_2O$	58.15%
f) $NaCl$	0.05
g) $Na_2SO_4$	0.15%
h) $As_2O_3$	1 ppm
i) Density	45#/ft <sup>3</sup>

2. Test for:

- a) Sodium carbonate
- b) Iron
- c) Water Insolubles

3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.

4. Allowable Tolerance: Sodium Carbonate 98.0% Min  
 Iron 0.001% Max.  
 Water insolubles None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved [Signature]

Approved [Signature]

Date 7/26/45

Date 7/26/45

W. J. [Signature]  
19/24-45

3 3177

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Sodium Carbonate - 200 Area

**DECLASSIFIED**  
~~WITH DELETIONS~~

1. Specification: HEW Specification #16

- a) Total Na<sub>2</sub>O 57.3% Min.
- b) Water Insolubles 0.10% Max.

2. Test for:

- a) Total Na<sub>2</sub>O
- b) Water Insolubles

3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.

4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved *S. Aquilino*

Approved \_\_\_\_\_

Date 9/26/45

Date \_\_\_\_\_

*Benjamin T. Rogers*  
19/26-45-1

~~SECRET~~  
DECLASSIFIED ~~WITH DELETIONS~~

~~SECRET~~

3 3177

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

**DECLASSIFIED**

Sodium Chloride (Commercial grade crushed Rock Salt) -100 & 200 Areas

1. Specification: HEW Specification #110
  - a) Sodium chloride - 99.0% Min.
  - b) Insoluble 0.1% Max.
2. Test for:
  - a) Sodium chloride
  - b) Insoluble
3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.
4. Remarks: This material is purchased on Contract #7 which expires 6/30/46. While no specifications are included the average analysis of the material supplied must approximate the "typical analysis" supplied by the vendor and listed below:
 

a) Sodium chloride	99.52%
b) Water Insolubles	0.03%

Other typical constituents are as follows:

a) Calcium sulfate	0.32%
b) Magnesium Sulfate	0.05%
c) Magnesium Chloride	0.08%
5. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production Section

Approved L. Squier

Approved \_\_\_\_\_

Date 9/26/45

Date 11/24/45

Benjamin Rogner  
9/24-45

~~SECRET~~  
DECLASSIFIED WITH DELETIONS

3 3177

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

**DECLASSIFIED**  
~~WITH DELETIONS~~

Sodium Chloride - 300 Area

1. Specifications: HEW Specification #318

- |                                   |                     |
|-----------------------------------|---------------------|
| a) Grade                          | Powdered            |
| b) Insolubles                     | 0.005% Max.         |
| c) Neutrality                     | ACS Test '41, p 109 |
| d) Chlorate                       | 0.002% Max.         |
| e) Nitrate                        | 0.003% Max.         |
| f) Nitrogen Compounds (N)         | 0.001% Max.         |
| g) Phosphates                     | 0.0005% Max.        |
| h) Sulfates                       | 0.001% Max.         |
| i) Ca & Mg precipitates           | 0.005% Max.         |
| j) NH <sub>4</sub> OH precipitate | ACS Test '41, p 109 |
| k) Barium                         | 0.001% Max.         |
| l) Heavy Metals (Pb)              | 0.0005% Max.        |
| m) Iron                           | 0.0003% Max.        |
| n) Potassium                      | 0.01% Max.          |

2. Test for:

- a) Grade
- b) Insoluble
- c) Neutrality
- d) Chlorate
- e) Nitrate
- f) Nitrogen Compounds
- g) Phosphates

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- h) Sulfates
- i) Ca & Mg precipitates
- j) NH<sub>4</sub>OH precipitate
- k) Barium
- l) Heavy Metals
- m) Iron
- n) Potassium

**DECLASSIFIED**  
~~WITH DELETIONS~~

3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.

4. Allowable Tolerance: None

E. I du Pont de Nemours  
Technical Superintendent

Approved L. Squin

Date 9/26/45

Corps of Engineers  
Chief of Production

Approved \_\_\_\_\_

Date \_\_\_\_\_

Benjamin Roy  
19/26-45

3 3177

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Sodium Dichromate - 100 Area

**DECLASSIFIED**

1. Specification: HEW Specification #112
  - a) Sodium dichromate ( $\text{Na}_2\text{Cr}_2\text{O}_7 \cdot 2\text{H}_2\text{O}$ ) 98.0% Min.
  - b) Water insolubles 0.10% Max.
2. Test for:
  - a) Sodium dichromate
  - b) Water insolubles
3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.
4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved *J. J. ...*

Approved \_\_\_\_\_

Date 9/26/45

Date \_\_\_\_\_

*Benjamin T. Rogers*  
*9/26-45*

DECLASSIFIED ~~IN FULL~~ ~~EXEMPTIONS~~

3 3177

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Sodium Dichromate - 200 Area

**DECLASSIFIED**  
~~WITH DELETIONS~~

1. Specifications: HEW Specification #17

- a) Sodium dichromate ( $\text{Na}_2\text{Cr}_2\text{O}_7$ ) 86.2% Min.
- b) Sulfates 0.5% Max.
- c) Water Insolubles 0.1% Max.

2. Test for:

- a) Sodium dichromate
- b) Sulfates
- c) Water Insolubles

3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.

4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Approved L. Squier

Date 7/26/45

Corps of Engineers  
Chief of Production

Approved \_\_\_\_\_

Date \_\_\_\_\_

Benjamin R. ...  
19/26-45



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[REDACTED]

3 3177 [REDACTED]

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

**DECLASSIFIED**  
~~WITH DELETIONS~~

Sodium Hydroxide - 300 Area

- 1. Remarks: This material is received from the 200 Area bulk storage and analysis is made in the 200 Area.

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers, Engineer  
Chief of Production

Approved [Signature]

Approved \_\_\_\_\_

Date 9/26/45

Date \_\_\_\_\_

*Benjamin T. Rogney*  
*19/26-45*

[REDACTED]

~~SECRET~~

3 3177 ~~SECRET~~

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Sodium Hydroxide, Commercial Grade Caustic Soda - 200 Acre

**DECLASSIFIED**  
~~SECRET~~

**DECLASSIFIED**  
WITH DELETIONS

1. Specification: Contract No. 18, Expires 6/30/46

- a) Sodium Oxide 38.9 ±1%
- b) Sodium Hydroxide 50 ±1%
- c) Sodium Carbonate 0.30% Max.
- d) Sodium Chloride 1.2% Max.
- e) Sodium Sulfate 0.08% Max.
- f) Sodium Chlorate 0.10% Max.
- g) Silica 0.01% Max.
- h) Alumina 0.005% Max.
- i) Calcium 0.005% Max.
- j) Magnesium Oxide 0.005% Max.
- k) Iron 0.003% Max.
- l) Manganese 0.0001% Max.
- m) Copper 0.0002% Max.
- n) Nickel 0.0003% Max.

2. Test for:

- a) Sodium Oxide

3. Sampling: A 16 oz. sample of each shipment shall be delivered to the appropriate 222 Building Laboratory.

4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved S. J. [Signature]

Approved \_\_\_\_\_

Date 7/26/45

Date 8/26/45

Benjamin T. Rogers  
9/26-45

~~SECRET~~ **DECLASSIFIED** ~~SECRET~~

3 3177

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Sodium Nitrate, Commercial Grade - 200 & 300 Areas

**DECLASSIFIED**  
**WITH DELETIONS**

1. Specification: HEW Specification #22

- a) Water Insolubles 0.20% Max.
- b) Total Nitrate 60.0% Min.
- c) Total Chlorides 0.5% Max.
- d) Total Sulfates 1.0% Max.

2. Test for:

- a) Water insolubles
- b) Total Nitrate
- c) Total Chloride
- d) Total Sulfates

3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.

4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved L. J. [Signature]

Approved \_\_\_\_\_

Date 7/26/45

Date \_\_\_\_\_

Benjamin St. Rogers  
19/26-45

~~SECRET~~

3 3177 ~~SECRET~~

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Sodium Nitrite - 200 Area

**DECLASSIFIED**  
~~WITH DELETIONS~~

1. Specification: HEW Specification #23
  - a) Sodium Nitrite, dry basis 99.00% Min.
  - b) Moisture 0.30% Max.
  - c) Water Insolubles 0.05% Max.
  - d) Material must be free running
  
2. Test for:
  - a) Sodium Nitrite
  - b) Moisture
  - c) Water Insolubles
  - d) Material must be free running
  
3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.
  
4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved *L. Squier*

Approved \_\_\_\_\_

Date 9/26/45

Date \_\_\_\_\_  
*Benjamin T. Rogers*  
19/26-45

~~SECRET~~

DECLASSIFIED ~~WITH DELETIONS~~

3 3177

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Sodium phosphate, Dibasic, Commercial Grade - 100 & 200 Areas

**DECLASSIFIED**

1. Specification: None. To be analyzed on request only ~~WITH DELETIONS~~
2. Test for: Specific analysis to be decided upon at the time of the request for analysis.
3. Sampling: A 16 oz. sample shall be delivered to the Essential Material Laboratory, Building 3706 with each request for analysis.
4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved J. J. [Signature]

Approved \_\_\_\_\_

Date 9/26/45

Date \_\_\_\_\_

Benjamin Royce  
9/26-45

DECLASSIFIED ~~WITH DELETIONS~~

[Redacted]

3 3177

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Sodium Pyrophosphate - 300 Area

**DECLASSIFIED**  
~~WITH DELETIONS~~

1. Specification: HEW Specification #320

- a) Sodium pyrophosphate ( $\text{Na}_4\text{P}_2\text{O}_7$ ) 97.5% Min.
- b) Water Insolubles 0.20% Max.

2. Test for:

- a) Sodium Pyrophosphate
- b) Water Insolubles

3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.

4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved L. J. Quinn

Approved \_\_\_\_\_

Date 9/26/45

Date \_\_\_\_\_

Benjamin Royce  
11/26-45

3 3177

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Sodium Silicate Aqueous - 100 Area

**DECLASSIFIED**  
**WITH DELETIONS**

1. Specification: Contract #23. Expires 10/31/45
  - a) Ratio:  $SiO_2/Na_2O$  3.20 ± 0.5
  - b) Specific Gravity @ 60°F 41.0 ± 0.5 %
  - c)  $Na_2O$  8.9 ± 0.2%
  - d)  $SiO_2$  28.5 ± 0.5%

2. Test for:

- a) Specific Gravity
- b)  $Na_2O$
- c)  $SiO_2$

3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.

4. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved *L. D. Quinn*

Approved \_\_\_\_\_

Date *9/26/45*

Date \_\_\_\_\_

*Benjamin T. Rogers*  
*9/26/45*



3 3177

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Steel Sleeves - 300 Area

**DECLASSIFIED**  
~~UNCLASSIFIED~~

1. Specifications: None
2. Test for: Analyzed on special request only.
3. Sampling: If an analysis of this material is desired the Essential Material Laboratory Supervisor shall be consulted as to the size of the sample to be submitted.

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved L. Aguirre

Approved \_\_\_\_\_

Date 9/26/45

Date 9/24/45  
Bayant Rogers

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Sulfuric Acid, Type A - 200 Area

**DECLASSIFIED**  
~~WITH DELETIONS~~

1. Specifications: HEW Specification #20

- a) Sulfuric Acid 58-60 or 66°Be
- b) Total Iron 0.03% Max.
- c) Organic Matter 0.02% Max.
- d) Copper 0.01% Max.
- e) Lead 0.02% Max.
- f) Nitric Acid and Oxides of Nitrogen 0.01% Max.
- g) Color Clear, light amber or better

2. Test for:

- a) Sulfuric Acid
- b) Total Iron
- c) Organic Matter
- d) Nitric Acid and Oxides of Nitrogen
- e) Color

3. Sampling: A 16 oz. sample from each shipment shall be submitted to the appropriate 222 Building Laboratory.

4. Allowable Tolerance: None

5. Revision #1, November 8, 1945

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved [Signature]

Approved [Signature]

Date 11/9/45

Date 11-10-45

3 3177

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

J.M. Super-Cell (or other filter Aid) - 100 Area

1. Specification: HEW Specification #102

**DECLASSIFIED**  
~~WITH DELETIONS~~

A. Particle Size

- a) Maximum particle size 80 microns
- b) 5-15% 24-40 microns
- c) 20-35% 12-24 "
- d) 28-42% 6-12 "
- e) 47% Max. Less than 6 microns
- f) 20% Min. " " " "

2. Test for:

A Particle Size

3. Sampling: A 16 oz sample of each shipment shall be delivered to the Essential Material Laboratory Building 3706.

4. Remarks: Particle size measurements are made with an Andreasen Sedimentation Pipette.

5. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved [Signature]

Approved [Signature]

Date 1/26/45

Date 9/21/45

PTK



HANFORD ENGINEER WORKS

3 3177

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Tin - 300 Area

**DECLASSIFIED**  
WITH DELETIONS

**DECLASSIFIED**  
WITH DELETIONS

2. Test for:

- a) Antimony
- b) Arsenic
- c) Lead
- d) Bismuth
- e) Copper
- f) Iron
- g) Silver
- h) Nickel & Cobalt
- i) Cadmium
- j) Sulfur





- 3. Sampling: Three ingots or bars from each shipment or lot shall be delivered to the Essential Material Laboratory, Building 3706.
- 4. Allowable Tolerance: None

**DECLASSIFIED**

E. I du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

~~WITH DELETIONS~~

Approved L. Aquino  
Date 9/26/45

Approved \_\_\_\_\_  
Date \_\_\_\_\_  
Benjamin Rogney  
9/24-45

DECLASSIFIED ~~WITH DELETIONS~~



HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Tri - Chloro - Ethylene - 300 Area

**DECLASSIFIED**  
**WITH DELETIONS**

1. Specification: HEW Specification #323

- a) Distillation range 1st drop 84.4°C Min.  
95% 84.4 - 90.0°C
- b) Total alkalinity (pyridine) 0.05% Min.
- c) Residue on Evaporation 0.05% Max.
- d) Chlorides 0.01% Max.
- e) Water To pass test

2. Test for:

- a) Distillation range
- b) Total alkalinity
- c) Residue on Evaporation
- d) Chloride
- e) Water

3. Sampling:

A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Building 3706.

4. Allowable Tolerance: None

5. Revision #1 November 1, 1946

General Electric Company  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved AB. Branning

Approved Harvey H. Hain

Date 11-1-46

Date 11-6-46

HANFORD ENGINEER WORKS

STANDARD PROCEDURE FOR RECEIVING ESSENTIAL MATERIALS

Zirconium Carbonate Gel - 200 Area

**DECLASSIFY  
WITH DELETION**

1. Specification: Contract #9, Expires 6/30/46

- a) Zirconium Oxide 19% Min.
- b) Chlorides 0.01% Max.
- c) Nitric Acid Insolubles 0.30% Max.
- d) ~~Fluoride~~ precipitate To pass test (Paragraph 4)

2. Test for:

- a) Zirconium oxide
- b) Chloride

3. Sampling: A 16 oz. sample of each shipment shall be delivered to the Essential Material Laboratory, Bldg. 3706.

4. Remarks: The fluoride test is as follows:  
Heat the filtrate from the nitric acid treatment for three hours at 75°C, and add HF to make the solution 1N. Any turbidity should not exceed that obtained from the same volume of Na Cl solution (1 ml of 0.33 g. Na Cl per liter diluted to 55 ml.) when acidified with HNO<sub>3</sub> and treated with 1 ml of 2% Ag NO<sub>3</sub>.

5. Allowable Tolerance: None

E. I. du Pont de Nemours  
Technical Superintendent

Corps of Engineers  
Chief of Production

Approved L. S. [Signature]

Approved \_\_\_\_\_

Date 9/26/45

Date \_\_\_\_\_

Benjamin Rogus  
9/26-45