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June 15, 2020**

**DEPARTMENT OF THE TREASURY
BUREAU OF ENGRAVING AND PRINTING
WASHINGTON, D.C. 20228**

**BEP SPECIFICATION
FOR
50% SODIUM HYDROXIDE SOLUTION**

1.0 SCOPE AND CLASSIFICATION

1.1 Scope. This specification establishes performance and acceptance requirements for 50% sodium hydroxide solution delivered by tank truck or in drums. The material shall be suitable for use as an ingredient in water-based wiping solution for currency printing presses at the Bureau of Engraving and Printing, hereinafter referred to as "BEP".

1.2 Classification. This specification covers one type of 50% sodium hydroxide solution. It shall be identified as BEP stock item number 2A000580 when delivered in bulk and as BEP stock item number 2A00580A when delivered in 55-gallon (208 liter) drums.

2.0 APPLICABLE DOCUMENTS. The issues of the documents are those in effect on the date of the solicitation.

2.1 Government Documents.

2.1.1 Specifications, Standards, and Handbooks. The following specifications, standards, and handbooks form a part of this specification to the extent specified herein.

BUREAU OF ENGRAVING AND PRINTING SPECIFICATIONS:

C: COS-6 BEP Specification for Sodium-Sulfated Castor Oil
L: VAB-1A (current version) Specification for Vendor Affixed Barcode
Labels for Bureau of Engraving and Printing Materials

(Single copies of BEP documents are available from the Contracting Officer; Bureau of Engraving and Printing; 14th and "C" Streets, S.W.; Washington, D.C. 20228).

2.1.2 Other Government Documents, Drawings, and Publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein.

BUREAU OF ENGRAVING AND PRINTING DOCUMENT

75B-07.0-05, Revision 5, EHS Requirements for Purchased Materials
75D-07.0-01, EHS Review Procedure
75D-07.0-07, Restricted Materials at DCF
75D-00.0-08, Operational Planning and Control

PUBLICATIONS:

29 CFR 1910, Part 1200 – Hazard Communication Standard (Occupational Safety and Health Administration). See also Federal Register Vol. 48, No. 228, November 24, 1983

40 CFR 261 – Identification and Listing of Hazardous Waste See also Federal Registrar, Vol.55, No. 61, March 29, 1990

40 CFR Part 707 – Chemical Imports and Exports

40 CFR 720 – Premanufacture Notification; Premanufacture Notice Requirements and Review Procedures

40 CFR 761 – Polychlorinated Biphenyls (PCB's), Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions

Superfund Amendments and Reauthorization Act (SARA) Title III

40 CFR 355 – Requirement for Emergency Planning and Notification under CERLA

40 CFR 370 – Hazardous Chemical Reporting and Community Right to Know Requirements

40 CFR 372 – Toxic Chemical Release Reporting

49 CFR 100 – 199 – Department of Transportation Rules and Regulations

42 UNITED STATES CODE 6901 *et seq.* and 6962

See also General Provisions for USC 6901 and Federal Procurement for USC 6962

Clean Air Act Amendments of 1990, Section 112, Air Toxics

(The Code of Federal Regulations (CFR) and the Federal Register (FR) are for sale on a subscription basis by the Superintendent of Documents; U.S. Government Printing Office; Washington, D.C. 20402. Reprints of certain regulations may be obtained from the Federal agency responsible for their issuance.)

District of Columbia Municipal Regulations (DCMR), Title 20, Air Quality Control Regulations

District of Columbia Municipal Regulations (DCMR), Title 21, Discharge Standards

(Request for copies should be addressed to the District of Columbia; Office of Documents and Administrative Issuance, Room 520; One Judiciary Square; 441 4th Street, NW, Washington, DC 20001.)

California's "Safe Drinking Water and Toxic Enforcement Act" of 1986 (Proposition 65)

(Requests for copies should be addressed to the California Environmental Protection Agency; Office of Environmental Health Hazard Assessment; 301 Capitol Mall, Room 205; Sacramento, California 95814)

2.2 Non-Government Publications. The following documents form a part of this specification to the extent specified herein.

Testing and Materials Methods:

ASTM D 891	Apparent Specific Gravity of Liquid Industrial Chemicals
ASTM E 100	Standard Specification for ASTM Hydrometers
ASTM E 291	Chemical Analysis of Caustic Soda and Caustic Potash
ASTM E 300	Practice for Sampling Industrial Chemicals
ASTM C 1193	Specification for Reagent Water
ASTM D 6809	Guide for Quality Control and Quality Assurance Procedures for Aromatic Hydrocarbons and Related Materials

ASTM E 60

Practice for Analysis of Metals, Ores, and Related Materials by Spectrophotometry

ASTM E 180

Practice for Determining the Precision of ASTM Methods for Analysis and Testing of Industrial and Specialty Chemicals

(Request for copies should be addressed to the American Society for Testing and Materials; 916 Race Street; Philadelphia, Pennsylvania 19103.)

Organization (ISO) / American Society for Quality (ASQ):

ANSI/ISO/ASQ Q9001-2015 Quality Management Systems – Requirements

(Request for copies should be addressed to the American Society for Quality; Attn: CRS Department; P.O. Box 3066; Milwaukee, Wisconsin 53203-3066)

American Public Health Association, American Water Work Association, and the Water Environment Federation (APHA-AWWA-WEF)

Standard Methods for the Examination of Water and Wastewater, Method 4500-CN for Total Cyanide.

(Request for copies should be addressed to the American Public Health Association; 800 I Street, NW; Washington, DC 2001.)

National Motor Freight Classification Rules and Container Specifications

(Requests for copies should be addressed to the American Trucking Association, Inc.; 2200 Mill Road; Alexandria, Virginia 22314-4677.)

Non-Government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents may also be available in or through libraries or other information services.

2.3 Order of Precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.4 Internal References. All paragraph and table references will be to paragraphs and tables of this specification unless noted otherwise.

3.0 REQUIREMENTS

3.1 Material. The sodium hydroxide solution shall be made of 50 percent (± 2

percent) by weight of solid sodium hydroxide dissolved in distilled water. It shall be manufactured from a process that does not use a mercury amalgam electrode system.

3.2 Performance. The 50% sodium hydroxide solution shall perform as an ingredient in water-based wiping solution for the BEP's intaglio printing presses. The BEP prints US currency and other securities on De La Rue-Giori I-10 intaglio presses and KBA Super Orlof Intaglio (SOI) presses. The wiping solution is made up of 1.0% sodium hydroxide, 0.5% sodium-sulfated castor oil and 98.5% softened water by mass. The BEP reserves the right to change the percentages of the ingredients.

3.3 Physical and Chemical Requirements. The 50% sodium hydroxide solution shall conform to the requirements listed in Table I of this specification.

**TABLE I
PHYSICAL AND CHEMICAL PROPERTIES**

Property	Minimum	Maximum	Method
Specific Gravity @ 15.5°C	1.51	1.54	ASTM D 891
NaOH (% by weight)	48.0	52.0	ASTM E 291-18

3.4 Health and Safety Requirements in Handling, Printing, and Processing. The contractor shall comply with the requirements of 75D-07.0.05, EHS Requirements for Purchased Materials and 75D-07.0-07 Restricted Materials at DCF.

3.4.1 Safety Data Sheets (SDSs). The contractor shall comply with the regulation set forth in 29 CFR 1910, Part 1200, the Hazard Communication (HazComm) Standard, including the preparation of Safety Data Sheets (SDS). A SDS that does not meet the provisions of this Standard will not be approved. A material without an approved SDS will not be accepted by the BEP.

3.4.2 Health and Safety. The BEP retains the right to reject any material that causes an adverse effect upon its employees. Such effects are those that are not listed on the product's safety data sheet (SDS).

3.5 Environmental Requirements.

3.5.1 The contractor shall comply with the requirements of 75D-07.0-05, Revision 5, EHS Requirements for Purchased Materials.

3.5.2 Polychlorinated Biphenyls (PCBs). The material shall comply with the regulations set forth with the requirements in 40 CFR 761.30 and shall not contain polychlorinated biphenyls (PCBs) in excess of 0.001 mg/L as required in Title 21, DCMR, Section 1501.8

3.5.3 Chemical Imports and Exports. 40 CFR Part 707 establishes import requirements of chemical substances, mixture, and articles under Section 13 of the Toxic Substances Control Act (TSCA). All suppliers, foreign or domestic, shall sign the following statement for each import of chemical substances subject to TSCA rules and regulations:

"I certify that all chemical substances in this shipment comply with all applicable rules or orders under TSCA and that I am not offering a chemical substance for entry in violation of TSCA or any applicable rule or order under TSCA."

4.0 QUALITY ASSURANCE PROVISIONS

4.1 Contractor Quality Assurance System. The BEP shall rely on the contractor's existing quality assurance system which must meet the minimum requirements prescribed in ISO9001:2015. The BEP reserves the right to perform any inspections and tests that the BEP deems necessary upon receipt of the material to assure conformance to requirements. The BEP may conduct periodic site visits and quality audits of the facilities of the manufacturer or major first-tier subcontractors in cases where the contractor is a "broker" or "regular dealer". Upon request by the BEP, the contractor shall provide a copy of their current quality assurance system document, e.g., quality assurance plan to the BEP. If the contractor is a "broker" or a "regular dealer" and not the manufacturer of the supplies to be delivered under the terms of the contract, the BEP may request that the contractor provide a copy of the current quality system document of its major first-tier subcontractors. The quality assurance system document may be used by the BEP for conducting a contract audit.

4.1.1 Modifications of the Quality Assurance System. During the term of the contract, the contractor shall not deviate from the approved quality assurance plan without prior written approval from the BEP. The contractor shall notify the BEP of any planned changes to its quality assurance system manual or plan. The changes shall be submitted in writing to the Contracting Officer and the Contracting Officer's Representative (COR) with the reasons for the changes.

4.2 INSPECTION AND TESTING

4.2.1 Responsibility for Inspection and Testing. Unless otherwise specified in the contract or purchase order, the Contractor is responsible for the performance of all inspection and testing requirements as specified herein. Except as otherwise specified, the supplier may utilize his/her own facilities, or any commercial laboratory acceptable to the BEP.

4.2.2 QA Testing. The Contractor will evaluate the physical and chemical properties of 50% sodium hydroxide solution for conformance with the requirements of paragraph 3.3 of this specification.

4.2.3 Sampling for Testing and Inspection. Sampling for inspection shall be based on a method that is an accepted industry practice.

4.2.3.1 Lot Identification. When the sodium hydroxide solution is delivered in bulk, each tank truck shall be an individual lot. For sodium hydroxide solution delivered in drums, a lot shall be a manufacturer's single batch, i.e., all the raw materials processed at one time or in an operation or sequence of operations to yield the finished product. The lots for shipment in drums shall be expressed in units of drums.

4.2.3.2 Sampling and Inspection of Bulk Shipments. A representative sample of each truck load may be taken for analysis. The lot will be rejected if the sample fails to meet the requirements of the specification.

4.2.3.3 Sampling and Inspection of Shipments in Drums. The number of drums sampled for examination and testing of sodium hydroxide solution shall be as specified in 4.2.3. A sample unit shall consist of one liter of solution taken from a drum. The lot shall be rejected if one or more sample units are defective.

4.3 TESTING

4.3.1 Determination of Specific Gravity. The BEP will evaluate the specific gravity of the sodium hydroxide solution for conformance with the requirements specified in, Table I paragraph 3.3 of this specification following ASTM D891.

4.3.2 Sodium Hydroxide Concentration (NaOH). The BEP will evaluate the concentration of sodium hydroxide (% by weight) for conformance with the requirements specified in Table I, paragraph 3.3 of this specification following ASTM E291-18.

4.3.3 Mercury Content Analysis. The mercury content in the sodium hydroxide solution shall be determined in accordance with US EPA test method 7470 (EPA document SW 846.)

4.4 Inspection for Weight. Examination for weight shall be based on a method that is an accepted industry practice. Any drum containing less sodium hydroxide solution than is marked on the drum shall be considered discrepant.

4.4.1 Examination for Delivery. Examination of preparation for delivery shall be based on a method that is an accepted industry practice. Inspection shall cover the requirements of Section 5 of this specification.

4.4.2 Bulk Shipments. 50% sodium hydroxide solution, BEP stock number 2A000580 shall be delivered in tank trucks. The quantity of sodium hydroxide solution for delivery to BEP shall be in accordance with the purchase order. Typically, sodium hydroxide solution delivery ranges from 3,500 to 4,500 gallons per tank truck.

4.4.3 Shipments in Drums. 50% sodium hydroxide solution, BEP stock number 2A00580A shall be delivered in drums. The quantity of drums of sodium hydroxide solution for delivery to BEP shall be in accordance with the purchase order. Defects shall be characterized as follows:

**TABLE II
DRUM DEFECTS**

SPECIFICATION REQUIREMENTS	DEFECT
Container	Not as specified
Weight of Contents	Not as specified
Workmanship	Bulging or distortion of container, leakage, loose or missing closure
Marking	Omitted, incorrect, illegible, improper size or location

4.5 Contractor Documentation. The contractor shall provide the documentation listed in sections 4.5.1 and 4.5.2 of this specification on 50% sodium hydroxide solution supplied to the BEP.

4.5.1 Contractor Certification and Reports. The contractor shall certify in writing that all 50% sodium hydroxide solution supplied in each delivery is in compliance with and conforms to all the requirements including health, safety, and environmental as set forth in this specification. The signed and dated certification shall include a statement of recovered material content. This certification of conformance shall

accompany the reports of contractor inspections and tests. The contractor shall furnish the certification of analysis (COA) and reports showing the results of inspection and test performed for each batch or lot to the Contracting Officer's Representative (COR) before the shipment. A reference to the test method for each test performed shall be included on the certification of analysis report. The instrument used for each test, serial number, and last calibration date shall also be included as part of the COA.

4.5.2 Control Chart. The contractor shall provide a control chart of each of the control variables identified by the BEP. The control variables are characteristics or properties of the 50% sodium hydroxide solution identified in the BEP specification (see paragraph 3.3). The control chart is a plot of the control variable of each lot or batch of material plotted sequentially by date of manufacture and shall contain the specification limits for the characteristic or property. The contractor shall furnish a hard copy and an electronic copy by e-mail attachment of the control chart of each control variable to the Contracting Officer's Representative (COR) on a quarterly basis.

5.0 PREPARATION FOR DELIVERY

5.1 Bulk Shipments. Sodium hydroxide solution, BEP stock number 2A000580 shall be delivered in clean tank trucks to prevent contamination of the solution. The quantity of sodium hydroxide solution for delivery to BEP shall be in accordance with the purchase order. Typically, sodium hydroxide solution delivery ranges from 3,500 to 4,500 gallons per tank truck. Specific delivery locations and information on delivery will be provided by the BEP. All tank truck deliveries must utilize a day truck. The maximum length and height of the day truck and the bulk tanker that BEP can accommodate is limited to 54 feet and 12 feet, respectively.

5.1.1 Delivery Information. At the time of delivery, the contractor shall furnish the BEP with the information listed below,

- a. The manufacturer's lot number
- b. The volume of solution delivered
- c. The weight of solution delivered
- d. The BEP purchase order number

5.1.2 Shipments in Drums. The sodium hydroxide solution, BEP stock item number 2A00580A, shall be delivered in clean, tight, 208-liter (55-gallons) drums that are chemically resistant to the sodium hydroxide solution. The drums must be closed (1A1 or 1H1) with a 2 inch and a 0.75-2 inch bung hole. The drum shall contain 318 kilograms $\pm$ 1% (701 pounds $\pm$ 1%) per drum. Four drums of sodium hydroxide

solution, BEP stock number 2A00580A, shall be delivered per pallet. A strap shall be placed around the upper half of the drums on each pallet to secure the drums. The strap shall not slip toward the bottom of the drums. The packaging shall conform to all applicable Department of Transportation (DOT) Rules and Regulations for the material contained therein. The packaging shall conform to the applicable requirements of the National Motor Freight Classification Rules and Container Specification.

5.2 Marking. The tank truck shall display all DOT hazard and identification markings as required in the applicable DOT regulations for the material specified herein.

5.2.1 Drum Marking. Each drum shall be plainly marked on two opposite sides, "50% SODIUM HYDROXIDE SOLUTION," BEP STOCK NUMBER 2A00580A," with net and gross weights, the contents in gallons, the manufacturer's lot number, and the name of the contractor. The product identification markings shall be legible and of a color contrasting to that of their background. Each drum shall be labeled in accordance with applicable Department of Transportation Rules and Regulations, Applicable HMIS labeling and with the information required by the Occupational Safety And Health Administration Hazard Communication Standard. The item name and BEP stock number shall not be less than 25 millimeters (one inch) high.

5.2.2 Hazard Warning Labels. Each container shall be labeled in accordance with the applicable Department of Transportation Rules and Regulations with the provisions of the Hazard Communication Standard, 29 CFR 1910.1200 (f). This label shall include the name and address of the manufacturer, the identity of the hazardous materials, and the appropriate hazard warnings.

5.2.3 Barcode Label. Barcode labels applied to drums shall conform to the "Specifications for Vendors Affixed Barcode Labels for the BEP Materials". Each drum shall be marked in accordance with the categories in Section 2.1 of the cited label specification with the following barcode information:

**TABLE III
BARCODE INFORMATION**

SPECIFICATION CATEGORY	LABEL INFORMATION
Product Description	Sodium-Hydroxide Solution
PO#	Purchase Order Number
Part#	2A00580A
Quantity	Net weight of contents in

	pounds per drum
Serial/Lot#	The Manufacturer's Lot or Batch Number

Revision Number	Revision Date	Affected Specification Sections	Description of Change
1	6/15/20	3.4.1 and 3.4.2	Changed any reference to MSDS to SDS
		4.4.3 and 5.2.3	Reformatted tables II and III to match table I
		6.0	Removed section 6 (Definitions of "Shall", "Will", and "Should")
2	10/01/21	3.1 and 3.3	Changed 1% to 2% to match industry standard
		3.3	Changed 1.520 to 1.51 and 1.540 to 1.54
		4.5.1	Added the need for instrument and calibration information on COA