

TEXAS SPECIFICATION NO. 180-04-02B
PHOSPHORIC ACID, 85%, TECHNICAL

Effective Date: May 2011

1. **SCOPE:** This specification establishes the minimum requirements for a technical grade of phosphoric acid suitable for use as a component of a concentrated acid-type cleaner and scale remover.

Phosphoric acid furnished under this specification is to be used in the manufacture of acidic cleaning compositions for removing milkstone or limestone deposits from milk-processing vessels and other equipment. As a strong mineral acid, it can cause chemical burns on contact with the skin or eyes, therefore protective gloves, face shields, and hard hats should be worn by handlers. Splashed liquid should be immediately flushed from the body by means of an emergency shower, eye fountain, or faucet. First aid for accidental swallowing consists of dilution with large amounts of water or milk, followed by a tablespoon of milk of magnesia. A physician should be called immediately.

2. **DEFINITIONS:**

Terminology used in this specification is intended to be generic in nature and consistent with meanings that have been defined through general use and/or accepted trade practices. Where variant meanings may exist, the applicable interpretation shall be determined by the Texas Procurement and Support Services, a division of the Texas Comptroller of Public Accounts (CPA).

3. **SPECIFICATION REQUIREMENTS:** Phosphoric acid furnished under this specification shall meet or exceed the following:

3.1. **GENERAL REQUIREMENTS:** The product shall be a clear, nearly colorless liquid, essentially free from insoluble sediment.

3.2. **CHEMICAL AND PHYSICAL REQUIREMENTS:** The product shall conform to the requirements below, when tested by the methods cited in Section 4.

Requirements	Minimum	Maximum	Testing Method
1. Phosphoric Acid as P ₃ PO ₄ , pbw*	85.0	--	4.1
2. Heavy metals as Pb, ppm**	--	10	4.1
3. Arsenic as As ₂ O ₃ , ppm**	--	3	4.3
4. Specific gravity, 25/25.5°C	1.686	--	4.4
5. Color, Pt-Co	--	20	4.5

*pbw: percent by weight

**ppm: parts per million

4. **TESTING:** Testing shall be performed by American Society for Testing and Materials (ASTM) procedures.

ASTM D 1209 - Standard Test Method for Color of Clear Liquids (Platinum-Cobalt Scale)

ASTM E 358 - Standard Test Methods for Analysis of Phosphoric Acid

Testing shall be done by an independent laboratory (preferred ASTM recommended, <http://www.astm.org/LABS/search.html>). Tests shall be performed on products will be provided to ordering agencies.

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The product furnished under this specification shall be tested by the following methods:

- 4.1. **Phosphoric Acid as P_3PO_4** : Federal Specification A-A-55820.
 - 4.2. **Heavy Metals as Pb**: Federal Specification A-A-55820.
 - 4.3. **Arsenic as As_2O_3** : Federal Specification A-A-55820.
 - 4.4. **Specific Gravity**: ASTM E 358.
 - 4.5. **Color, Platinum-Cobalt**: ASTM D 1209
5. **INSPECTION**: Products furnished under this specification shall be inspected by, or at the direction of the customer at the time of delivery.
6. **PACKAGING**:

The product shall be delivered in 55 gallon rigid polyethylene drums conforming to applicable Department of Transportation regulations, containing 750 pounds net.

Packing for shipment shall be in accordance with the manufacturer's standard practice and in a manner readily accepted by common carriers engaged in interstate commerce. Within the shipping carton, units shall be packed in a manner designed to minimize damage during the shipment because of rough or improper handling.

- 6.1. **PACKAGE MARKINGS**: Each shipping container shall be clearly marked with the following:
- 6.1.1. Name of contents, including brand name, if any.
 - 6.1.2. Quantity contained in pounds and/or kilograms.
 - 6.1.3. Name and address of the manufacturer.
 - 6.1.4. Warning statements as required by governmental regulations. A label on a container of a hazardous chemical must meet the requirements of the most current OSHA standards.
 - 6.1.5. The following additional information shall either be marked on the container or appear on the shipping documents:
 - Purchase order number or contract number.
 - Name and address of customer.
 - Customer's requisition number.
- 6.2. **LABELING**: Each container shall bear a durable label containing the name of the product and instructions for use, including required precautionary statements.
7. **COMPLIANCE**: The vendor must comply with the following documents upon delivery:
- 7.1. **Certificate of Analysis (CA)**: A certificate of analysis from the manufacturer shall be submitted with each shipment.
 - 7.2. **Material Safety Data Sheets (MSDS)**: All Items must conform to the Texas Hazard Communications Act by being certified as nontoxic or providing an official MSDS sheet

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conforming to the requirements of the most current OSHA standards. A copy of the official MSDS sheet for each applicable chemical product must be submitted with each sample; each initial shipment; and updated MSDS must be provided with the first shipment after update.

8. APPROVED PRODUCTS LIST (APL):

The CPA maintains an APL of products that meet or exceed the requirements of this specification. The products being approved are listed as follows:

Manufacturer	Brand Name / Product Number
Rhodia	Phos PH Acid
Astaris	Phosphoric Acid

To have a new product listed on the APL, the following procedures are required:

8.1. Submit a written request to CPA, Texas Procurement and Support Services Division and include the following documentations:

- **Official Certificate of Analysis from an independent laboratory**

The official Certificate of Analysis must list the following:

- ✓ Chemical Name (CTFI/INCI name) and CAS No.
- ✓ Manufacturer Name
- ✓ Brand Name or Trade Name
- ✓ Batch or Lot Identification Number
- ✓ Each analytical result given as outlined in the RFP specifications
- ✓ Laboratory Name, Address, and Contact Information

- **Detailed technical specifications**
- **Product literature**
- **Material Safety Data Sheet (MSDS)**

8.2. The Certificate of Analysis will be reviewed and if approved, samples will be requested, in writing by CPA, for compatibility testing. The shipping instructions will be provided to the vendor at the time of the request.

8.3. A minimum of sixty (60) days will be required for compatibility testing to be conducted.

8.4. Sample sizes should be no less than 250 grams for powders and 500 ml for liquids. **Each sample must be accompanied with a current MSDS from the manufacturer.** More samples may be requested in writing by CPA. Samples will not be accepted unless accompanied with the current MSDS document for that material.

8.5. **CONTINUED COMPLIANCE:** Listing an approved product shall not relieve the vendor of providing products meeting each requirement of this specification. The vendor shall notify the CPA, in writing, of any changes in the product, address, brand name, etc.

8.6. **REMOVAL FROM APL:** Products on the APL may be removed for non-compliance, as determined by the CPA, or for failure to provide notification of any change to APL product(s).