

TEXAS SPECIFICATION NO. 180-74-04B
TETRAPOTASSIUM PYROPHOSPHATE (TKPP)

Effective Date: May 2011

1. **SCOPE:** This specification establishes the minimum requirements for tetrapotassium pyrophosphate (TKPP), for use as a component of liquid detergents.

TKPP is a highly soluble, mildly alkaline component of liquid detergents, with good wetting, dispersing, and sequestering ability. It absorbs water readily from the air; material should be transferred from a broken or partly empty container to one which can be sealed against atmospheric moisture.

Reference the manufacturer's Material Safety Data Sheet (MSDS) for handling and emergency procedures.

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:** TKPP furnished under this specification shall meet or exceed the following requirements:

- 3.1 **GENERAL REQUIREMENTS:** The product shall be a white, free-flowing solid in granular form:
K₄P₂O₇

- 3.2 **CHEMICAL AND PHYSICAL REQUIREMENTS:** The product shall conform to the requirements below, when tested by the procedure of Section 4.

Requirement	Minimum	Maximum
TKPP, *pbw	97.0	--
Titratable alkalinity as K ₂ O, *pbw	28.20	--
Water insoluble matter, *pbw	--	0.1
pH in 1% solution	10.20	10.6

***pbw: percent by weight**

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

ASTM D 501 - Standard Test Methods of Sampling and Chemical Analysis of Alkaline Detergents

ASTM E 70 - Standard Test Method for PH of Aqueous Solutions with the Glass Electrode

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.

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

- 4.1 **TKPP:** Measure by the procedure of ASTM D 501. Substitute K₄P₂O₇ in the formula for calculating the test result.
- 4.2 **Titratable Alkalinity:** Weigh accurately into a stoppered weighing bottle a six-gram sample of TKPP. Transfer the sample quantitatively to a 500-ml volumetric flask and dilute to the mark with

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distilled water. Titrate a 50-ml aliquot with standard 0.1 N HCl to the methyl orange end point. Calculate the result by means of the formula:

pbw titratable alkalinity as K₂O = A x N x 4.71/W

A = ml standard HCl consumed

N = normality of HCl

W = weight in grams of the original sample

- 4.3 **Insoluble Matter:** Determine compliance by the procedure of ASTM D 501.
- 4.4 **pH:** Determine compliance by the procedure of ASTM E 70.
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 TKPP shall be packaged in 100 to 400 pound moisture proof, plastic-lined, re-sealable fiber drums.

The material of the container shall neither affect, nor be affected by, the contents for a period of one year after delivery date.

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 conforming to the requirements

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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	Tetrapotassium Pyrophosphate
Astaris	Tetrapotassium Pyrophosphate

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).