

**REFINERY SUPPLY COMPANY, INC.  
9133-A EAST 46<sup>th</sup> STREET  
TULSA, OK 74145**



*"Serving the Oil & Gas Industry since 1923"*

## **OPERATING INSTRUCTIONS**

**PRE-COOLING VESSEL  
Catalog# 27351-000**

Voice (918) 621-1700 Fax (918) 621-1704

Assembly and Operating Instructions  
for the Precooling Apparatus  
for Determining Volatility and Residues  
of Liquefied Petroleum Gases per  
A.S.T.M.

**SAFETY AND HAZARD WARNING**

This equipment may involve hazardous material and operations. These instructions DO NOT purport to address all of the safety problems associated with the use of the equipment. It is the responsibility of whoever uses the equipment to consult and establish the appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

**INTRODUCTION**

The pre-cooling apparatus is used to cool liquefied petroleum gas samples prior to testing. The gas sample is cooled below its boiling point by passing the gas through copper cooling coils, which are immersed in a cooling medium. The cooled sample is then collected and tested per the applicable specifications.

The operating instructions for the precooling apparatus should be used together with one of the applicable published test method standards for testing liquefied petroleum gas.

**PUBLICATIONS**

ASTM D1837 Volatility of L.P.G.

ASTM D2158 Residues of L.P.G.

AMERICAN SOCIETY FOR TESTING AND MATERIALS  
1916 Race Street.  
Philadelphia, PA. 19103-1187  
Telephone: 610-832-9585  
Fax: 610-832-9555

## **STANDARD EQUIPMENT AND REQUIRED ACCESSORIES**

1. One pre-cooling apparatus with cooling coil and outlet valve.
2. Non corrosive cooling fluid for chilling the cooling coils. The fluid required depends on the boiling point of the material being cooled. The use of flammable cooling fluids is not recommended.
3. Cooling material. In many cases dry ice is recommended for chilling the cooling fluid.

## **INSTALLATION PROCEDURES**

1. Connect the gas sample source to the male inlet fitting of the pre-cooling coil. The coil connection is a ¼" male pipe thread. This connection should be secured and checked for any leakage.

## **OPERATION**

1. Fill the pre-cooling chamber with a liquid, which will perform suitably at the desired operating temperature.
2. Slowly add small pieces of dry ice to the fluid to bring the fluid to the operating temperature.
3. When the fluid has reached the test temperature, make sure the outlet valve is closed at this time. Slowly open the inlet valve regulating flow into the pre-cooler.
4. Slowly open the pre-cooler valve and purge out enough sample to clear the lines. Collect enough sample as the specified procedure requires and close the outlet valve.
5. Close the inlet supply valve and reopen the pre-cooler valve to purge the remainder of any sample present.

## **MAINTENANCE**

Periodically disconnect the pre-cooler and rinse the interior with a suitable non-corrosive solvent. Dry the interior with instrument grade nitrogen.