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Inspection Methodologies for  
Periodic Inspection of Aboveground Plastic Storage Tanks

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API does not endorse any other products or services that Mr. Cornell may provide to the industry.

Authorized Trainer for:



Canada's premiere provider of Aboveground Storage Tank Training.

# Inspection Methodologies for Periodic Inspection of Aboveground Plastic Storage Tanks

Organizations such as the American Petroleum Institute and the Steel Tank Institute have released nationally recognized AST inspection standards

Both have been recognized by The EPA

Neither offer any assistance in the inspection of non-metallic AST's, large or small

*API- RP 575 is linked by inclusion in the API-653 examinations, "Body of Knowledge"*

# Can we use plastic tanks?

## OSHA:

“... an installation in accordance with NFPA 30 is acceptable to OSHA...”

*See OSHA for complete details*

## NFPA 30, 2003 Edition

Tanks shall be of steel ...with the following limitations and exceptions:

Chapter 4, Section 4.2.2, “Materials of Construction”

(2) Tanks shall be permitted to be constructed of combustible materials...

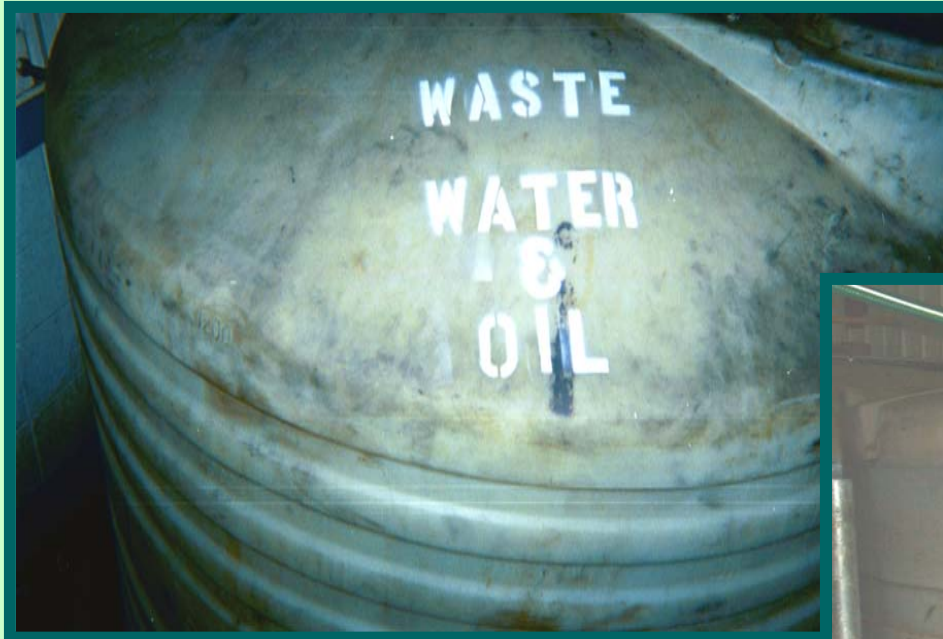
(c) Aboveground storage of Class IIIB liquids...

## EPA

The SPCC makes little mention of the material of construction but has instead focused its attention on the container or tank size...

# Class IIIB

Motor Oil, Waste Oil, Oily Water, Etc..



# Is Testing Required for Plastic Tanks?

- EPA

*The SPCC makes little mention of the material of construction but has instead focused its attention on the container or tank size...*

Since there is no direct mention of plastic tanks in the EPA's SPCC, do we need to inspect our plastic tanks and if so, to what extent? **Yes !!**

The lack of a specific exemption implies that they are to be included in a company's SPCC Tank Inspection Program.

- NFPA 30, 2003 Edition

NFPA 30 emphasizes the need for integrity inspection. Section A.4.6.7.1 states:

*Regular inspections of aboveground storage tanks, performed in accordance with national standards, provide a means to ensure system maintenance. Acceptable standards include, but are not limited to, the following: **API 653, STI SP001-01 ...***



Does NFPA 30 only  
require the steel tank  
to be inspected?

# Is Testing Required, *Continued*

## NFPA 30, 2003 Edition

Having clearly stated that inspections should occur, some state that since the types of standards listed deal entirely with non-plastic tanks, that they are left without a clear directive to perform inspections. For those still doubting, we submit the following statement that is also found in NFPA 30:

***“Maintenance and operating practices at tank storage facilities shall control leakage and prevent spillage of liquids”***

This is a clear directive to owners of all tank types to ensure against releases. Remember, the easiest way to control leakage is through periodical inspection, to ensure against leaks before they occur.

# Testing Methodology

Exhibit 1

New Jersey Department of Environmental Protection  
Bureau of Discharge Prevention

A Guide to the Inspection and Testing of Aboveground Storage Tanks

Issued: July 1995 - Revised: September 2001

***This document supersedes the September 1997 edition of: A Guide to Testing Aboveground Storage Tanks .***

## 1<sup>st</sup> Item

“Subsequent testing must include a combination of integrity testing **and** internal inspections and must be performed at intervals of no more than **five years**, unless the tank follows an inspection and maintenance program that is in compliance with American Petroleum Institute Standard 653 (API 653). In addition, all storage areas, including tanks with associated piping, must be visually inspected for integrity and signs of leakage pursuant to N.J.A.C. 7:1E-2.10(a). A qualified professional engineer or an appropriate API certified inspector should review the results of integrity tests and internal visual inspections to ensure the tank is fit for service.”

## 2<sup>nd</sup> Item

### **-Alternative Testing Methods**

#### **-Homogenous Plastic Tanks:**

- \*1. Hydro test head test every five (5) years;
- \*2. External inspection conducted by a competent inspector knowledgeable of homogenous plastic tanks every five (5) years; **and**
- \*3. Internal visual inspection conducted by a competent inspector knowledgeable of homogenous plastic tanks every five (5) years.

***\* Paraphrased, edited or reworded for clarity.***



# Testing Methodology

## Visual Inspections

Testing must include a combination of integrity testing along with both external and, if possible, internal inspections.

A qualified professional, such as an API-653 Certified tank inspector, should perform both an external and internal visual inspections to ensure the tank is fit for service.

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# Testing Methodology

Visual Inspections, *continued*



# Testing Methodology

## UT Inspections

Testing can also include UT testing to detect general thinning of the plastic tank “wall”.

*A qualified professional may not know what the actual required thickness of the tank was when it was made, but can now detect areas of thinning.*



# Testing Methodology

## Hydro Testing

The static head test has been the most widely used test for active leak detection. The standard static head test measures the stability of a volume of liquid in a tank filled to at least 75% capacity and held over a minimum period of 24 hours. Static head test every five (5) years.

## Dye-Penetrant

Liquid penetrant testing has been used successfully to inspect connections to plastic tanks such as, but not limited to, nozzles, couplings and manway openings. It is also very effective in highlighting environmentally stressed areas of the tank itself.

## Hammer Test

API – RP 575 discusses the use of a hammer test.

Are your plastic tanks edible?



# Are your plastic tanks edible?

