



**Advance  
Technology  
For Research  
And Testing**





## Metalloid Corporation

Formulating, Manufacturing, and Marketing Metalworking Fluids to a Broad Spectrum of Industries Since 1951.

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**Metalloid Research and Testing Center** offers a full range of materials testing services in order to support our customers with the necessary information, and documentation for the proper materials selection, quality control, proper documentation, and failure assessment needed to conduct in-depth R&D. Testing methodology aligns with ASTM, ASHRAE, and industry-specific guidelines.

Metalloid Corp. knows that beyond the testing and research routine, customers occasionally need help with unique questions, situations, and problems. Our chemists and technicians have the experience to help with answers and solutions. We go above and beyond what it takes to maintain satisfied customers, and businesses running as smooth as possible.

## Quality Control

Metalloid specializes in presenting our customers with accurate and reliable results, as well as the time commitment to understanding fully the necessities specific to each customer. All testing services are performed according to industry specifications, customer requirements backed by years of experience. For Metalloid, quality is a top priority.

## Testing Methodology

Chemical analysis, using advanced technology, determines the composition of samples, the performance, and assesses if the product is ideal for the task. Qualitative and quantitative instrumental analysis and wet chemistry are performed to analyze the composition and compatibility of the process chemical.

# Metalloid Research and Testing Center Performs:

## Refrigeration Testing

- **ASHRAE Standard 172** determines the formation of insoluble materials in synthetic lubricants and hydrofluorocarbon (HFC) systems, the results of which can be used to compare lubricants and refrigerants.
- **ASHRAE Standard 86** provides a method for measuring the floc point (waxing tendency) of refrigeration grade oils.
- **ASHRAE Standard 97** describes a uniform means for testing the various materials used within hermetic and non-hermetic refrigerant systems. It is primarily intended as an accelerated screening tool and can provide valuable information on the chemical stability of system materials.

## Ion Chromatography Determination

- **Formic and Acetic acids** have been proven through research to be highly corrosive to copper through pitting corrosion, which can comprise the integrity of the HVAC-R system. The testing is conducted to elucidate if these acids are formed from a reaction involving the Finstamping lubricant.
- **Halides** are usually strong corrosive acid forming ions that can compromise the system through corrosion of the metals present in such system.

## Compatability Testing

- **Plastic/lubricant** evaluations are conducted to observe if the lubricant could potential weaken or degrade plastic that the lubricant could inadvertently come into contact with, e.g., a drain pan under an evaporator unit.
- **Polymer** evaluates lubricants tested with different polymers to determine compatibility of a lubricant and polymer system.

## Volatile Organic Compound (VOC) Content

Determines the VOC percentage released in the atmosphere.

- **Thermal Gravimetric Analysis** – ASTM 1868
- **EPA method 24** – ASTM 2369

## Substrate Wettability Testing

Water Contact Angle determination is conducted to observe if the lubricant is going to impart a lower water contact angle to the substrate – ASTM D734

## Water Content Analysis

Determines the free water and water of hydration in most solids or liquid organic and inorganic compounds that could compromise a product or a system – ASTM E203

## pH Analysis

This test determines the electrometric measurements of pH values of aqueous solutions with a glass electrode. It is used to determine the combability of a product with the end use – ASTM E70-07

## Kinematic Viscosity

Viscosity of liquid petroleum products is the determination of the time for a volume of liquid to flow under gravity through a calibrated glass capillary viscometer – ASTM D445

## Total Acid Number

This method covers the determination of acidic content in petroleum products, lubricants, biodiesel, and blends of biodiesel, in order to observe the possible formation of undesired by-products – ASTM D664-11A

## Flash Point

This method describes the determination of flash and fire point of petroleum products through an open cup apparatus – ASTM D92

## Specific Gravity

This method covers the determination of Specific gravity using a glass hydrometer – ASTM D1298

## Metals and Elemental Spectroscopy

This determines the presence of additive elements, wear metals, and contaminants in used or unused in lubricating oils and base oils by inductively coupled plasma – ASTM D5185

## Failure Assessment

When a product is not performing to expectations by not accomplishing the needed task, by becoming unreliable, unsafe, or simply failing to fulfill a desired function. The determination of whether the material is the proper one for the task, determining manufacturing defects, environmental conditions, or improper usage of the chemical. An in-depth investigation by using advanced technology to determine the source of the problem and offer suggestions to prevent reemergence or development of the problem.

**For more information about Metalloid Research and Testing Center, please contact us toll free at (800) 686-3201, or visit our website at [www.metalloidcorp.com](http://www.metalloidcorp.com)**





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## Professional Associations

