

THE CHEMCAT® SYSTEM: IMPORTANT INFORMATION FOR HAZMAT RESPONDERS

It is necessary to quickly determine chemical reactive “characteristics” of Hazardous materials in lieu of their exact composition when responding to an Emergency Response incident. These hazardous characteristics can be quickly, accurately screened by using a series of qualitative and semi-quantitative tests referred to as Compatibility or Chemical Characterization **CHEMCAT** testing. **CHEMCAT** testing is the compilation of several classical chemistry tests of functionality (e.g. acid/base/flammable/sulfide, etc.) and/or reactivity of materials, particularly for unknown materials.

During the course of lab training, students will be provided with necessary classroom experience critical to utilizing the **CHEMCAT** System properly. The lab will provide actual hands on training with practical identification skills. Students will greatly benefit from my many years of expertise. I copyrighted this concept in 1995 and it has demonstrated exemplary performance in field ever since. This system has been the strategic force in characterizing over 10,000 unknown samples throughout my career as a lead chemist and EPA contractor at multitudes of Superfund sites, chemical spills, lab packing assignments, and Emergency Response Incidents.

HISTORY OF FIELD ANALYTICAL TESTS

Compatibility testing was first used in the environmental field as a means to determine the safety hazards of and group by certain chemical properties, aiding in the disposal of large numbers of drummed materials present in abandoned facilities in the late 1970's and early 1980's. Over the years, there has been need for testing these properties as characteristics are vital to safe handling and proper disposition of materials. This gap was filled by the **CHEMCAT** System in the 1990's.

The **CHEMCAT** system is the culmination of more than 25 years of my environmental experiences and analytical training. It has been designed to provide simple procedures for each of the **CHEMCAT** tests (known as “test analytes” or TA's) as well as important safety and identification information.

CHEMCAT testing is part science and part “art” and requires a qualified person who understands chemical reactions, incompatibilities, and interpretation such as the Hazardous Materials Technician. Although the procedures presented in the **CHEMCAT** manual are straightforward, it is imperative that a qualified HAZMAT Technician, Specialist, Safety Officer, or Chemist/Specialist Employee performs and/or reviews the results of these tests to ensure the Safety of Site/Incident personnel as well as “affected” or exposed individuals.

THE ADVANTAGE OF CHEMCAT FEILD TESTING

Chemical Categorization **CHEMCAT** testing is a series of qualitative and semi-quantitative tests designed to quickly and inexpensively identify hazards and characteristics associated with unknown materials. These tests are performed on small quantities of a material so that potential reactivity and safety hazards can be revealed allowing for; isolation/separation, proper packaging, appropriate shipment to a TSD of choice, and proper procedural planning prior to, operational deployment for mitigation handling.

These tests are performed using industry-standard TA's without need for any sophisticated, delicate, & expensive electronic devices. Typically, trained personnel can perform the series of **CHEMCAT** tests in less than 30 minutes while at the scene of the incident. In fact, the only electronic device used with the **CHEMCAT** system is an inexpensive “Geiger Counter” powered by a standard 9-volt battery. As such, with the **CHEMCAT** system, there is no need for concern about keeping any sensitive electronic “black box” charged, factory-calibrated equipment maintained. To personalize the **CHEMCAT** we suggest additional equipment for a focused **CHEMCAT** kit to fit your Team's specific response needs. This includes adding additional “external” equipment at your discretion, varying TA's deployed by your Team, and finally specialized **CHEMCAT** type tests for a more focused effectiveness at incidents. Such as;

- 1] External Equipment - thermal heat guns enabling responders to determine interior temperature increases
- 2] Varying Tests – same TA's from varying manufacturers as a safety cross check
- 3] Specialized **CHEMCAT** – indicator papers for WMD's

The beauty of the **CHEMCAT** system is that the QA/QC for the individual tests is integrated into the test procedure. The test kit comes equipped with the necessary test solutions to preclude false negatives hence ensuring the individual tests are valid. The **CHEMCAT** does “Not” depend on faulty battery operation or low charging issues, and is truly the “go-to” kit for your organization, mitigation, response, and EPA compliant classifications.

The simplicity of the **CHEMCAT** analysis system is exemplified by EPA (Environmental Protection Agency) 40 CFR Part 261 Subpart C “Waste Characterization” for mitigation, packaging and final shipment to your designated TSD (Transport, Storage, Disposal Facility) of choice. This technique requirement is the standard “Best Practices” recommended by OSHA 29 CFR 1910.120 Hazardous Waste Operations.

THE TEST ANALYSIS EXPERIMENTAL PERFORMANCE

There are twelve (12) basic tests that can be used to provide important reactivity and characteristic data of a material. (Additional modules are being added for finite Specialization of your Team's needs and response areas.) We can provide unique tests for specialized sites for your responders.

**Air Reactivity
Density
Flammability**

**Water Reactivity
Peroxide
Cyanide**

**Water Solubility
Oxidizer
Sulfide**

**Organic Solubility
Halogenated
pH (Acid/Base)**

Several tests are designed to alert potential safety concerns such as: flammability or toxic gas generation while others are intended to differentiate high cost or limiting disposal properties such as: halogenated liquids. The remaining tests are intended to provide necessary data once the incident has been mitigated for proper packaging/disposal and further analysis (end point).

CHEMCAT RESTOCKING COST (USD)

Peroxide:	\$15.00
Oxidizer:	\$2.00
Cyanide:	\$25.00
Sulfide:	\$25.00
pH Strips:	\$25.00
50 Test tubes:	\$15.00
Miscellaneous:	\$15.00
Propane:	[Can be obtained from your local Hardware store.]

Total: \$122.00USD (plus tax & shipping)

Restocking costs are not necessarily on an annual basis. Many tests stay in-service for longer than 1 calendar year from issue. Also, these fees are based on how frequently the tests are used. When used regularly, supplies will be depleted and necessitates restocking item-by-item. This can be prior to 1 calendar year or longer depending on response frequency. Replenishment costs are market driven; no additional profit margin is added by Hawkins Environmental.

We use expired tests for training modules to maximize the benefits for your Teams organization.

Contact us for specialized finite focus "CHEMCAT" Kits for your field of study

Kit Cost: \$900.00 (USD)

Step-by-step field instructions available on www.hazmatmike.com

Purchase & Additional questions contact Jim Hawkins at chemist.environmental@gmail.com

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ChemCat™ Training Manual
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July 15, 1993

