



CORROSION
TESTING
LABORATORIES

Brochure & Price List

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Corrosion Testing Laboratories, Inc.

Corrosion Testing Laboratories, Inc. (CTL) is a complete, full service corrosion and materials evaluations facility, providing a wide variety of services to chemical, pharmaceutical, biomedical, petroleum, metal refinery, and other industries nation-wide and around the world. We offer conventional testing conforming to standard specifications (such as ASTM, NACE, MTI, ISO etc.) and also specialize in innovative, unique projects, custom-developed to meet sometimes elaborate and sophisticated needs of a client.

The CTL's staff is comprised of specialists proficient in Corrosion and Materials Consultation, Failure Analysis, and Expert Testimony. Articles published by CTL staff range in topics, such as Rouging, Formicary Corrosion, Medical Implant Testing, Failure Analysis, etc. In addition, the technical support staff of CTL has attained certifications from NACE International.

Being a fully equipped Corrosion, Materials and Assessment Facility, CTL offers a multitude of services to meet the needs of our clientele. Our services include:

- a) Corrosion Testing and Research
 - a. Medical Devices FDA Testing– ASTM F2129, F3044
 - b. Formicary Corrosion (a.k.a., ant's nest) of HVAC unitary and commercial condensers
 - c. ASTM Acceptance, Immersion testing, Hot Wall, etc.
 - d. DOT, GHS and EPA Corrosivity Testing
- b) Failure Analysis and Field Assessments
 - a. Microbiologically influenced corrosion, stress corrosion cracking, formicary corrosion, fatigue, etc.
 - b. Failures dealing with shafts, pumps, chillers, propellers, tubes/piping, boilers, bolts, water systems, etc.
 - c. Rouging Assessment audits for pharmaceutical applications
 - d. Non-Destructive Assessment - wall thickness, vessel assessments, etc.
 - e. Assessments of failures in fire sprinkler systems, cooling water loops, domestic & industrial plumbing, etc.
- c) Expert testimony and litigation support service
- d) Materials consultation
- e) Metallographic examination
- f) Chemical Analysis – FTIR

CTL follows a rigid quality assurance program in all of its work. In doing so, CTL has met and exceeded customer and industry requirements, including the nuclear industry.

Listed in this packet are some conventional corrosion testing, failure analysis and chemical analysis that CTL conducts. Please inquire for customized testing or for help in choosing the right test for your needs.

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Corrosion Testing Laboratories, Inc.

1. CORROSION TESTING

(US \$/Test)

Sample Preparation of Client Supplied Material	60
Sensitization/Heat Treating (per lot)	80
Customer laboratory visit to oversee testing	25% surcharge

Immersion Tests:

Standard (ASTM G 31) (1 week or less)	225
Standard (ASTM G 31) (up to 30 days)	250
Planned Interval Test (NACE TM01 69)	350
3-Phase Immersion Tests	425
Autoclave	800

ASTM Evaluation/Acceptance Tests: (all others, quote on request)

Intergranular Corrosion:

• A-262 Practice A (Oxalic Acid Etch)	125
• A-262 Practice B (Streicher Test)	200
• A-262 Practice C (Huey Test)	275
• A-262 Practice E (Modified Strauss Test)	200
• G-28 Method A (Ferric Sulfate/Sulfuric) Acid	200
• G-28 Method B (PEMT Test)	200

Stress Corrosion:

• G-36 Boiling Magnesium Chloride	450
• G-123 Boiling Sodium/Calcium/Lithium Chloride	300
• G-44 Alternate Immersion	price on request

Pitting and Crevice Corrosion:

• G-48 Method A or C (Ferric Chloride Pitting)	200
• G-48 Method B or D (Ferric Chloride Crevice)	225
• G-61 Cyclic Polarization (Hysteresis)	750
• G-150 Critical Pitting Temperature	800

National Association of Corrosion Engineers (NACE) Tests:

TM-01-69 Standard Immersion (1 week or less)	225
TM-01-69 Standard Immersion (up to 30 days)	250
TM-01-74 Protective Coatings (per panel, 30 days)	350
TM-01-77 Sulfide Stress Corrosion (ambient)	price on request
TM-02-84 Resistance to Stepwise Cracking	1345

Materials Technology Institute (MTI) Tests:

price on request

Heat Transfer Tests:

Hot Wall Test	375
Pressurized Hot Wall Test	750

Corrosion Testing Laboratories, Inc.

1. CORROSION TEST (cont.)	(US \$/Test)
<u>ISO 6509 - Dezincification</u>	400
<u>Electrochemical Tests:</u>	
Potentiodynamic (Potentiostatic) Polarization (ASTM G 5 or G 61):	
• Ambient pressure	750
• Autoclave (high temperature/pressure)	1750
Critical Crevice Temperature (CCT)	800
Critical Pitting Temperature (CPT) (ASTM G 150)	800
Galvanic (Dissimilar Metal) Couple Test (ASTM G 71)	800
<u>EIS Coating Evaluation</u>	
Basic	495
Advanced	Price on Request
<u>Formicary Corrosion Assessments:</u>	
Formicary Corrosion Pressurized Coil Testing	Price on Request
Formicary Assessment of Coils	Price on Request
Evaluation of Fluids Suspected in Causing Formicary Corrosion:	
1 - 2 Samples	500/sample
3 - 5 Samples	420/sample
6 - 10 Samples	375/sample
>10 Samples	350/sample
<u>Exposed Coupon Rack:</u>	
Test Specimen Evaluation	80
Specimen racks - per customer's requirements	Price on Request
<u>Department of Transportation (DOT) – OSHA – GHS Corrosivity Tests:</u>	
CFR Title 49, Chapter I, Section 173.137 (2005 Edition)	
Skin Corrosivity Test - InVitro Corrositex Method	1100
Metal Corrosivity Test (Steel and Aluminum) according to UN Model Regulations Section 37	2200
	2000/test for quantities >1
Metal Corrosivity Screening Test (Steel & Aluminum) single specimen each.	450

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1. CORROSION TEST (cont.)	(US \$/Test)
<u>Environmental Protection Agency Test:</u>	
EPA Publication SW-846, Method 1110 (Corrosivity towards Steel)	350
<u>Custom Corrosion Evaluation Tests:</u>	
<u>Test Specimens (most alloys available):</u>	Price on Request
<u>Medical Implant Tests</u>	
<ul style="list-style-type: none">• ASTM F 2129 – pitting & crevice corrosion• ASTM F 3044 – galvanic corrosion• ISO 16429 – electrochemical stability• Ion Leaching• ISO 10271 – Dental Implants	Price will vary depending on complexity of testing

2. FAILURE ANALYSIS

May include field investigations, laboratory examination, literature review, etc.

Price will vary depending on the complexity and level of investigation required.

For detailed information visit – www.corrosionlab.com/failure-analysis.htm

3. METALLOGRAPHY	(US \$/hr.)
<u>Laboratory Metallography:</u>	
Sample Preparation, including consumables	125
Optical Microscopy (OM)	125
Scanning Electron Microscopy	275
Energy Dispersant X-ray Spectroscopy (EDS)	275
Client Directed Analysis	Price on Request
<u>On-site Metallography</u>	Price on Request

4. CHEMICAL ANALYSIS	(US \$/Sample)
<u>Spectroscopy</u>	
Fourier Transform Infrared Spectrum (FTIR)	250
Reflectance Spectrum (ATR/MIR)	250
Sample Preparation	125/hr.
Spectral Interpretation	175/hr.
FRP Resin Identification - 3 or more samples	\$200 each
Ion Chromatography – common anions	150
Titrations, Extractions, Ashes	125/hr.
Photometric (Hach) Analysis of Solutions	125/hr.
Leachable Ions from solid material	250
Scanning Electron Microscopy (SEM)	275/hr.
Energy Dispersive X-Ray Spectroscopy (EDS)	275/hr.
<u>Soil Characterization</u>	
Texture, water content, resistivity, RedOx, pH, Acidity, Alkalinity, hardness, sulfide, chloride, and sulfate	\$550

5. EXPERT CONSULTATION & TESTIMONY	(US \$)
Discovery, Deposition, and Testimony	Price on Request
Use of laboratory and facilities	Price on Request
