

# Guidelines for best service and turnaround

## Purchase Orders - Destructive Testing/Specimen Machining

Your purchase order can be e-mailed or faxed to Sales/Customer Service in advance or enclosed with the materials or instruments sent to LTI for services. To ensure that orders are processed correctly and efficiently, we need all pertinent information before a job begins. Please include all of the following applicable details about the services requested on your PO.

**Type(s) of Testing and/or Machining Required:** (Refer to list of services on page 2)

- Mechanical Testing Type: \_\_\_\_\_ Quantity: \_\_\_\_\_
- Metallurgical Testing Type: \_\_\_\_\_ Quantity: \_\_\_\_\_
- Chemical Analysis Type: \_\_\_\_\_ Quantity: \_\_\_\_\_
- Corrosion Testing Type: \_\_\_\_\_ Quantity: \_\_\_\_\_
- Specimen Machining Type: \_\_\_\_\_ Quantity: \_\_\_\_\_

**Specification/Requirements:** \_\_\_\_\_

**Number of samples:** \_\_\_\_\_ **Number to be tested:** \_\_\_\_\_

**Material Description** (e.g. content): \_\_\_\_\_

\_\_\_\_\_ Plate \_\_\_\_\_ Tube/Pipe \_\_\_\_\_ Wire \_\_\_\_\_ Shape \_\_\_\_\_ Other

**Material Size** (e.g. thickness, diameter): \_\_\_\_\_

**Quote Number/Cost & Test Code from LTI Price List:** \_\_\_\_\_

**Part Drawing** (if applicable): \_\_\_\_\_

**Special Instructions** (if applicable): \_\_\_\_\_

**Return Samples:** \_\_\_\_ Yes \_\_\_\_ No **Return Extra Material** (if applicable): \_\_\_\_ Yes \_\_\_\_ No

**Shipping Method/Destination:** \_\_\_\_\_

**Turnaround: \***

- Standard
- Expedited Services: \*\* (Please call for availability)
  - \_\_ Same Day Rush
  - \_\_ Next Day Rush
  - \_\_ 2nd Day Rush
  - \_\_ 3rd Day Rush

\* Order will be completed by 5:00 p.m. on the due date

\*\* Material & Purchase Order must be received at LTI by 12:00 Noon to be considered as the first day of service

**Contact:** Name \_\_\_\_\_ Phone \_\_\_\_\_ E-mail \_\_\_\_\_

**Billing Information:** \_\_\_\_\_

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## Services

### DESTRUCTIVE TESTING

#### Chemical Analysis

- ♦ Inductively-Coupled Plasma AES {ICP-AES}
- ♦ Inductively-Coupled Plasma Mass {ICP-MS}
- ♦ Atomic Emissions Spectroscopy {AES}
- ♦ Energy Dispersive X-ray Spectrometry {EDS}
- ♦ Fourier Transform Infrared Spectroscopy {FTIR}
- ♦ Carbon / Sulfur / Nitrogen / Oxygen / Hydrogen
- ♦ Soxhlet Extraction
- ♦ Plating Identification
- ♦ Classical Wet Chemistry
- ♦ Density, Porosity & Oil Content
- ♦ Positive Material Identification {PMI}
- ♦ RoHS Compliance Testing

#### Metallography

- ♦ Microscopic / Macroscopic Examinations
- ♦ Microstructure
- ♦ Carburization / Decarburization
- ♦ Grain Size (ASTM E112)
- ♦ Plating / Coating Thickness
- ♦ Inclusion Rating (ASTM E45)
- ♦ Carbide Precipitation
- ♦ Ferrite by Point Count (ASTM E562)
- ♦ Alpha Case / Surface Contamination
- ♦ Intergranular Attack & Oxidation
- ♦ Nodularity, Nodule Count
- ♦ Sensitization
- ♦ Eutectic Melting
- ♦ Macro-etch (ASTM E340)
- ♦ Grain Flow
- ♦ Surface Condition
- ♦ Weld Qualification
- ♦ Microhardness (Knoop & Vickers - 100g to 10kg)
- ♦ Surface Contamination
- ♦ Case Depth
- ♦ Profiles
- ♦ Sample Preparation
- ♦ Digital Imaging
- ♦ Failure Analysis
- ♦ Scanning Electron Microscopy (SEM)

#### Corrosion Testing

- ♦ Corrosion (ASTM A262 & 923; G28, 48, 66 & 67)
- ♦ Salt Spray {Salt Fog} (ASTM B117)
- ♦ Passivation Testing (ASTM A380, A967 & MIL-STD 753 Methods 102 & 103)
- ♦ Humidity Testing (AMS 2700)

#### Mechanical Testing

- ♦ Bend
- ♦ Flattening
- ♦ Cone Strip
- ♦ Proof Load
- ♦ Yield Strength
- ♦ Drop Weight
- ♦ Stress Rupture
- ♦ Fracture Toughness
- ♦ Fatigue Crack Growth
- ♦ Flaring / Expansion
- ♦ Conductivity
- ♦ Magnetic Permeability
- ♦ Tensile / Ductility
- ♦ Wedge & Axial Tensile
- ♦ Elevated Temperature Tensile
- ♦ Charpy V-Notch Impact
- ♦ Hydrogen Embrittlement / Stress Durability
- ♦ Hardness Test - Rockwell, Brinell & Superficial
- ♦ Welder & Procedure Qualification  
(per ASME, ASTM, AWS & MIL Specs)

#### Specimen Machining

- ♦ Test Specimens to ASTM & MIL specifications
  - Jominy
  - Tensile
  - Fatigue
  - Izod impact
  - Stress rupture
  - Stress corrosion
  - Compact tension
  - Fracture toughness
  - Round Compression
  - Charpy V-notch impact
  - Hydrogen embrittlement
  - Face, root, side bend ...
- ♦ EDM & Specialty Machining