

Service/Test	Purpose	Description	Estimated time frame of testing*
Cyclic Chamber Test (Components)	To determine the rate of corrosion of test specimen through accelerated fluctuating climatic conditions in a chamber. The rate of corrosion provides an estimated time to first appearance of corrosion on the test specimen.	Testing of components in a cyclic temperature and humidity chamber in accordance to IEC 60068-2-30 for 15 days. Results will be sent via email and mail to client at the end of testing.	25 days
Cyclic Chamber Test (Full Chamber Utilization)	To determine the rate of corrosion of large test specimen through accelerated fluctuating climatic conditions utilizing the whole cyclic chamber. The rate of corrosion provides an estimated time to first appearance of corrosion on the test specimen.	Use of full area of cyclic temperature and humidity chamber in accordance to IEC 60068-2-30 for 15 days. Results will be sent via email and mail to client at the end of testing. Flat rate includes labor and equipment utilization fee.	25 days
Salt Spray Chamber Test (Fluids or Packaging Materials)	To determine the rate of corrosion of manufacturing process fluids or packaging material through accelerated salt filled environment in a chamber. The rate of corrosion provides an estimated time to first appearance of corrosion caused by the test specimen in a salt environment.	Testing of fluids or packaging materials in a salt spray chamber in accordance to ASTM B-117. Results will be sent via email and mail to client at the end of testing.	42 days
Salt Spray Chamber Test (Components)	To determine the rate of corrosion of test specimen through accelerated salt filled environment in a chamber. The rate of corrosion provides an estimated time to first appearance of corrosion caused by the test specimen in a salt environment.	Testing of components in a salt spray chamber in accordance to ASTM B-117. Results will be sent via email and mail to client at the end of testing.	42 days
Salt Spray Chamber Test (Full Chamber Utilization)	To determine the rate of corrosion of large test specimen through accelerated salt filled environment utilizing the whole chamber. The rate of corrosion provides an estimated time to first appearance of corrosion caused by the test specimen in a salt environment.	Testing of components in a salt spray chamber in accordance to ASTM B-117. Includes fluids, coatings, packaging materials, or components. Results will be sent via email and mail to client at the end of testing.	42 days

**Time starts from day NTIC receives the sample(s). Test duration is an estimate and depends on when the test sample shows signs of corrosion in the chamber.*

Service/Test	Purpose	Description	Estimated time frame of testing*
Cast Iron Chip Test	To do a quick and initial test on the corrosiveness of the	Basic test to identify if a processing fluid sample is	5 days

	manufacturing process fluids that may cause corrosion in export shipments.	corrosive. Tested in accordance to IP 287/94 and DIN 51 360 standards. Results will be sent via email and mail to the client at the end of testing. One (1) fluid specimen per test.	
Drop Test	To determine if the water source used in the various manufacturing processes causes corrosion on metal parts downstream or during export shipments.	General indicative test to determine the corrosivity of a plant's water source. Results will be sent via email and mail to client at the end of testing. Up to four (4) water specimens per test.	5 days
VCI Standard Test	To determine if a VCI product is providing basic corrosion protection via volatile/vapor corrosion inhibition in accordance to the MIL-STD-3010 Test Method 4031.	MIL-STD-3010 Test Method 4031 - test for the presence of volatile corrosion inhibitor on test specimen in an enclosure without direct contact on test coupon. Results will be sent via email and mail to client at the end of testing. One (1) specimen per test.	5 days
Humidity Chamber Test (Fluids or Packaging Materials)	To determine the rate of corrosion of manufacturing process fluids or packaging material through accelerated climatic conditions in a chamber. The rate of corrosion provides an estimated time to first appearance of corrosion caused by the test specimen.	Testing of fluids or packaging materials in a humidity chamber in accordance to ASTM D 1735 for 30 days. Results will be sent via email and mail to client at the end of testing. Up to eight (8) fluids or packaging materials per test.	42 days
Humidity Chamber Test (Components)	To determine the rate of corrosion of test components through accelerated climatic conditions in a chamber. The rate of corrosion provides an estimated time to first appearance of corrosion on the test specimen.	Testing of components in a humidity chamber in accordance to ASTM D 1735 for 30 days. Results will be sent via email and mail to client at the end of testing. Up to four (4) components per test.	42 days
Cyclic Chamber Test (Fluids or Packaging Materials)	To determine the rate of corrosion of manufacturing process fluids or packaging material through accelerated fluctuating climatic conditions in a chamber. The rate of corrosion provides an estimated time to first appearance of corrosion caused by the test specimen.	Testing of fluids or packaging materials in a cyclic temperature and humidity chamber in accordance to IEC 60068-2-30 for 15 days. Results will be sent via email and mail to client at the end of testing.	25 days

**Time starts from day NTIC receives the sample(s). Test duration is an estimate and depends on when the test sample shows signs of corrosion in the chamber.*

Service/Test	Purpose	Description	Estimated time frame of testing*
--------------	---------	-------------	----------------------------------

Carbon Dioxide, Hydrogen Sulfide and Sulfur Dioxide Chamber Test (Fluids or Packaging Materials)	To determine the rate of corrosion of manufacturing process fluids or packaging material through accelerated corrosive gas filled environment in a chamber. The rate of corrosion provides an estimated time to first appearance of corrosion caused by the test specimen in a corrosive gas environment.	Testing of fluids or the packaging materials in the presence of corrosive gases (Carbon Dioxide, Hydrogen Sulfide and/or Sulfur Dioxide) in a chamber for up to 30 days. Results will be sent via email and mail to client at the end of testing.	5 days
Carbon Dioxide, Hydrogen Sulfide and Sulfur Dioxide Chamber Test (Components)	To determine the rate of corrosion of test specimen through accelerated corrosive gas filled environment in a chamber. The rate of corrosion provides an estimated time to first appearance of corrosion on the test specimen in a corrosive gas environment.	Testing of components in the presence of corrosive gases (Carbon Dioxide, Hydrogen Sulfide and/or Sulfur Dioxide) in a chamber for up to 30 days. Results will be sent via email and mail to client at the end of testing.	5 days
Mechanical Property Test	To determine the mechanical properties of polymeric materials.	Testing of polymeric material/specimen for the physical properties (ASTM D-882 for tensile property, ASTM D-1709 for dart impact, ASTM D-1938 for tear resistance). Results will be sent via email and mail to client at the end of testing. One (1) specimen per test.	7 days
Data Logger Analysis	To provide the service to extract and analyze data from data loggers used in monitoring temperature and relative humidity during test shipments. The analysis may reveal possible periods of concerns accelerating corrosion during the shipment.	Extraction of data recorded on data logger, plotting of RH and Temperature charts, analysis recommendations, and documentation. Results will be sent via email and mail to client at the end of analysis. Fees are charged per data logger.	5 days
Problem Solving, Shipment Inspection Site Visit (Hourly Rate)	To provide problem solving service on corrosion problems with component shipments or shipment inspection site visit services.	On-site visit to inspect, install/retrieve data loggers, investigate, map out and identify problems and/or potential areas of corrosion causing factors in the manufacturing process. Typical process map requires 4 hours on-site visit depending on the complexity of the manufacturing process and corrosion problem. Client must allow Zerust® / Excor® personnel to take photos, collect MSDS data, copy relevant sections of the PFMEA (Process Failure Mode & Effect Analysis) and control plans. Reports will be sent via email and mail to client at the end of	NA

analysis. Fees are charged per hour and do not include travel expenses. Zerust® / Excor® personnel will obtain permission from Client on reimbursement of travel expenses before engaging in the job.

Basic Corrosion Prevention Training

To provide basic corrosion training and use of Zerust® / Excor® products to operators and engineers so that simple causes of corrosion failures can be prevented.

On-site training session on the appropriate handling methods, precautions, Zerust® / Excor® products, and basic corrosion knowledge. Training material, speaker's notes, and documentation (packaging guidelines, etc.) will be provided by Zerust® / Excor® personnel. This session is designed for a class size of 5 to 15 participants. No prior knowledge of corrosion protection is necessary. Fees are quoted per session and do not include travel expenses. Zerust® / Excor® personnel will obtain permission from Client on reimbursement of travel expenses before engaging in the job.

NA

**Time starts from day NTIC receives the sample(s). Test duration is an estimate and depends on when the test sample shows signs of corrosion in the chamber.*