



Rubber Proficiency Testing
Collaborative Testing Services



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TESTING QUESTIONS

rubber@cts-interlab.com

QUOTE REQUESTS & ORDER INQUIRIES

Subscriptions Department
subscriptions@cts-interlab.com

Collaborative Testing Services, Inc.

collaborative-testing.com | 571-434-1925

About Us

Founded in 1971, Collaborative Testing Services (CTS) is a leading proficiency testing provider that serves the evolving quality assurance needs of several industries with innovative interlaboratory proficiency testing. With worldwide clients in both the public and private sectors, we aim to create and administer sustainable and meaningful testing schemes in both our industry and forensic programs.

CTS is ANAB-accredited to ISO/IEC 17043. Certificate Number: AP-1884.

Our Testing Process

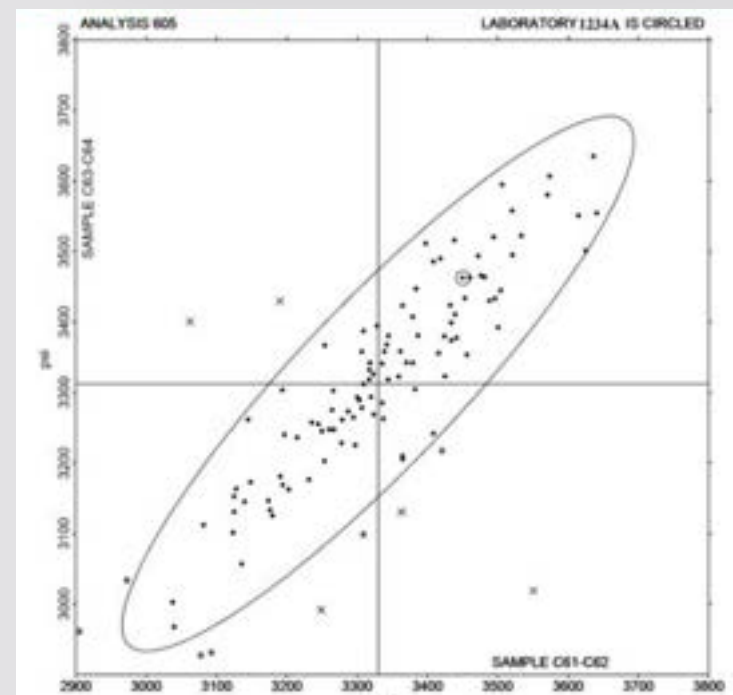
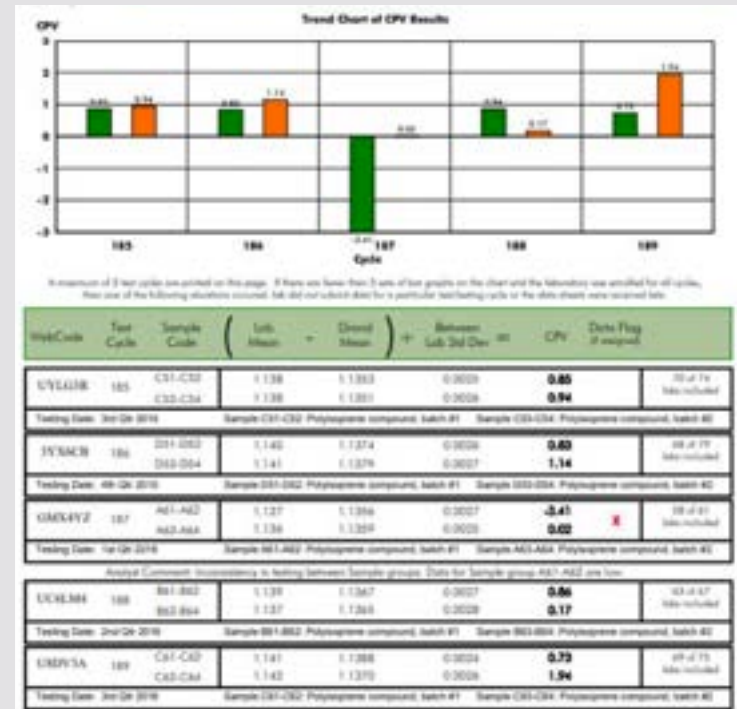
In keeping with the principles of quality assurance, we use a prepaid subscription model where testing is conducted on a quarterly schedule to ensure that proficiency testing is a streamlined and consistent process for your laboratory:

- Purchase your testing, noting the type of samples offered, frequency of testing, and other conditions.
- Receive your samples, test at your convenience, and submit your results through our full-service customer portal before the data due date (six weeks after samples ship).
- Receive your in-depth, individualized Performance Analysis Report just three weeks after the data due date, which uses bimodal consensus statistics to provide you with insight on what is actionable, what is diagnostic, and what is predictive.

Our Reports

Our reports are generated through a comprehensive analysis by our technical staff, with several features designed to provide data that is both insightful and easy to navigate.

- Trend charts visually present your historical performance over time, where continuous and consistent enrollment reaps the most benefits.
- Data tables provide a Comparative Performance Value (CPV), a ratio that represents how well your laboratory's results agree with the other participants. Our graphs provide this information in a visual format to pinpoint your lab's performance.
- Data flags and comments can be used to predict or diagnose potential issues before they escalate.



Rubber Program Schedule

We offer full-year, three-quarter, and half-year testing options for participation in our rubber program, depending on when you enroll.

- December 10th: includes all four test cycles for the year, with shipments in February, May, August, and November—a great option for labs looking to maximize value and observe trends over time.
- March 10th: includes three test cycles for the year, with shipments in May, August, and November.
- June 10th: includes two test cycles for the year, with shipments in August and November.

Enroll By:	Testing In:	Samples Ship:	Data Due Date:	Reports Issued:
December 10th of prior year	Q1–Q4	<ul style="list-style-type: none"> • February • May • August • November 	<ul style="list-style-type: none"> • March • June • September • December 	<ul style="list-style-type: none"> • April • July • October • January
March 10th of current year	Q2–Q4	<ul style="list-style-type: none"> • May • August • November 	<ul style="list-style-type: none"> • June • September • December 	<ul style="list-style-type: none"> • July • October • January
June 10th of current year	Q3–Q4	<ul style="list-style-type: none"> • August • November 	<ul style="list-style-type: none"> • September • December 	<ul style="list-style-type: none"> • October • January

Test Listings and Methods

Test 605: Tensile Properties, Hardness, and Density of Pre-Cured Rubber Samples

Participants will die out standard dumbbells (no rings) and report on any or all of the following properties: tensile strength, ultimate elongation, stress at 100% and 300% elongation, Type A hardness, and density.

Each test shipment includes two formulations of vulcanized rubber, supplied in the shape of two 6" by 6" plaques for each formulation.

Test Methods: ASTM D412, ASTM D2240, ASTM D297.

Test 630: Tensile Properties of Participant-Cured Rubber Samples

Participants will report on any or all of the following properties: tensile strength, ultimate elongation and stress at 100%, and ultimate elongation and stress at 300% elongation.

Each test shipment includes two 6" by 6" plaques of natural rubber. These plaques must be cured at temperatures up to 177°C.

This test requires concurrent enrollment in test 605.

Test Methods: ASTM D412, ASTM D3182.

Test 625: Durometer Hardness Type D/Shore D

Participants will report Type D/Shore D hardness.

Each test shipment includes two sample sets, each consisting of two 2" discs. The sample sets have different values between approximately 50 and 90 on the Shore D Hardness Scale.

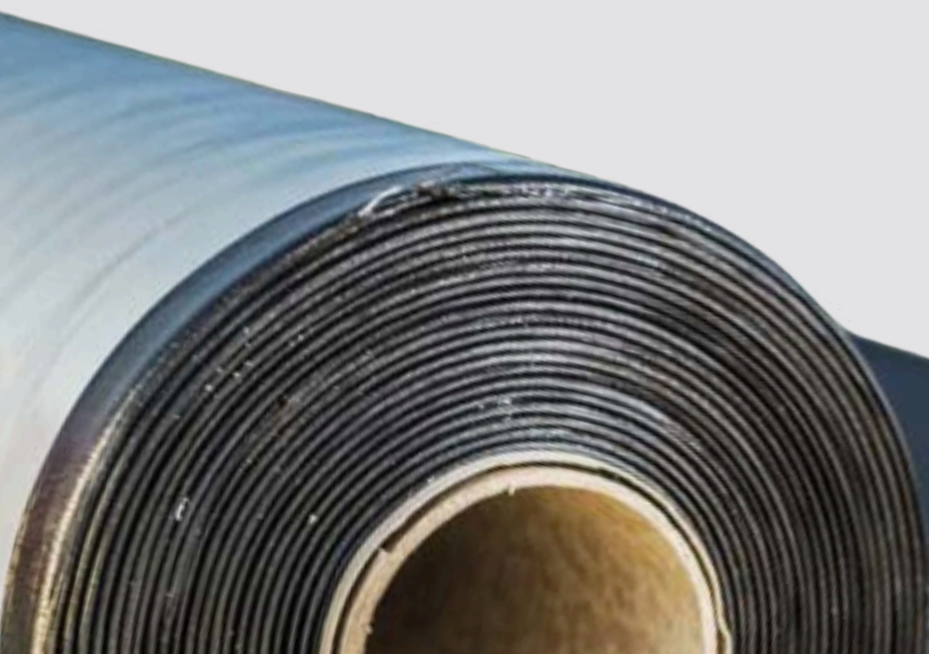
Test Methods: ASTM D2240.

Test 635: Compression Set

Participants will report percent compression of samples after 22 hours in a 70°C oven.

Each test shipment includes two sample sets, each consisting of three compression set buttons, for a total of six buttons. The buttons are molded from EPDM with a diameter of 29.0 mm (± 0.5 mm) and thickness of 12.5 mm (± 0.5 mm).

Test Methods: ASTM D396.



Test Listings and Methods (cont.)

Test 640: Tensile Properties, Hardness, and Density of O-Rings

Participants will report on any or all of the following properties: tensile strength, ultimate elongation, stress at 100% elongation, Type A Hardness, Type M Hardness, and density.

Each test shipment includes two sample sets, each consisting of seven O-rings, for a total of fourteen rings. The rings are manufactured from Nitrile (AS568-214) Rubber.

Test Methods: ASTM D1414, ASTM D412, ASTM D2240, ASTM D297.

Test 650: O-Ring Compression Set

Participants will report percent compression of samples after 22 hours in a 70°C oven.

Each test shipment includes two sample sets, each consisting of three O-rings, for a total of six rings. The rings are manufactured from Nitrile (AS568-214) Rubber.

Test Methods: ASTM D1414, ASTM D395.



Test 660: Mooney Viscosity

Participants will cut samples and test them as received at 100°C. These samples do not require mill massing, and results may be reported for Mooney Viscosity as ML 1+4 for all polymers, as well as ML 1+8 when butyl samples are distributed. Stress relaxation properties (t_{80} , X30, and area under the curve) may also be reported for all polymers.

Each test shipment includes two sample sets, each consisting of two raw polymers (e.g. SBR, NBR, or butyl). Butyl is sent every quarter for samples one and two, while samples three and four alternate between NBR and SBR each quarter.

Test Methods: ASTM D1646, ISO 289.

Test 685: Vulcanization Characteristics Using Rotorless Cure Meter (MDR) or RPA

Participants will test samples using a Moving Die Rheometer (MDR), then report on any or all of the following properties: t_{s1} , t'_{10} , t'_{50} , t'_{90} , minimum torque, and maximum torque.

Each test shipment includes two sample sets, each consisting of two EPDM rubber samples and film to conduct testing with.

Test Methods: ASTM D5289.



Test Listings and Methods (cont.)



Test 690: Rheological Properties of Unvulcanized Rubber Using RPA

Participants will test samples using a Rubber Process Analyzer (RPA) at a low strain of 7% and a moderate strain of 100% (or higher), then report on any or all of the following properties: storage shear modulus at 20 Hz (Part A, low strain), loss shear modulus at 20 Hz (Part A, low strain), storage shear modulus at 1.0 Hz (Part B, moderate strain) and loss shear modulus at 1.0 Hz (Part B, moderate strain).

Each test shipment includes two sample sets, each consisting of two EPDM rubber samples.

Test Methods: ASTM D6204.