



ADVANCING STANDARDS
TRANSFORMING MARKETS

ASTM International Interlaboratory Study Program (ILS)

Helping Our World Work Better®

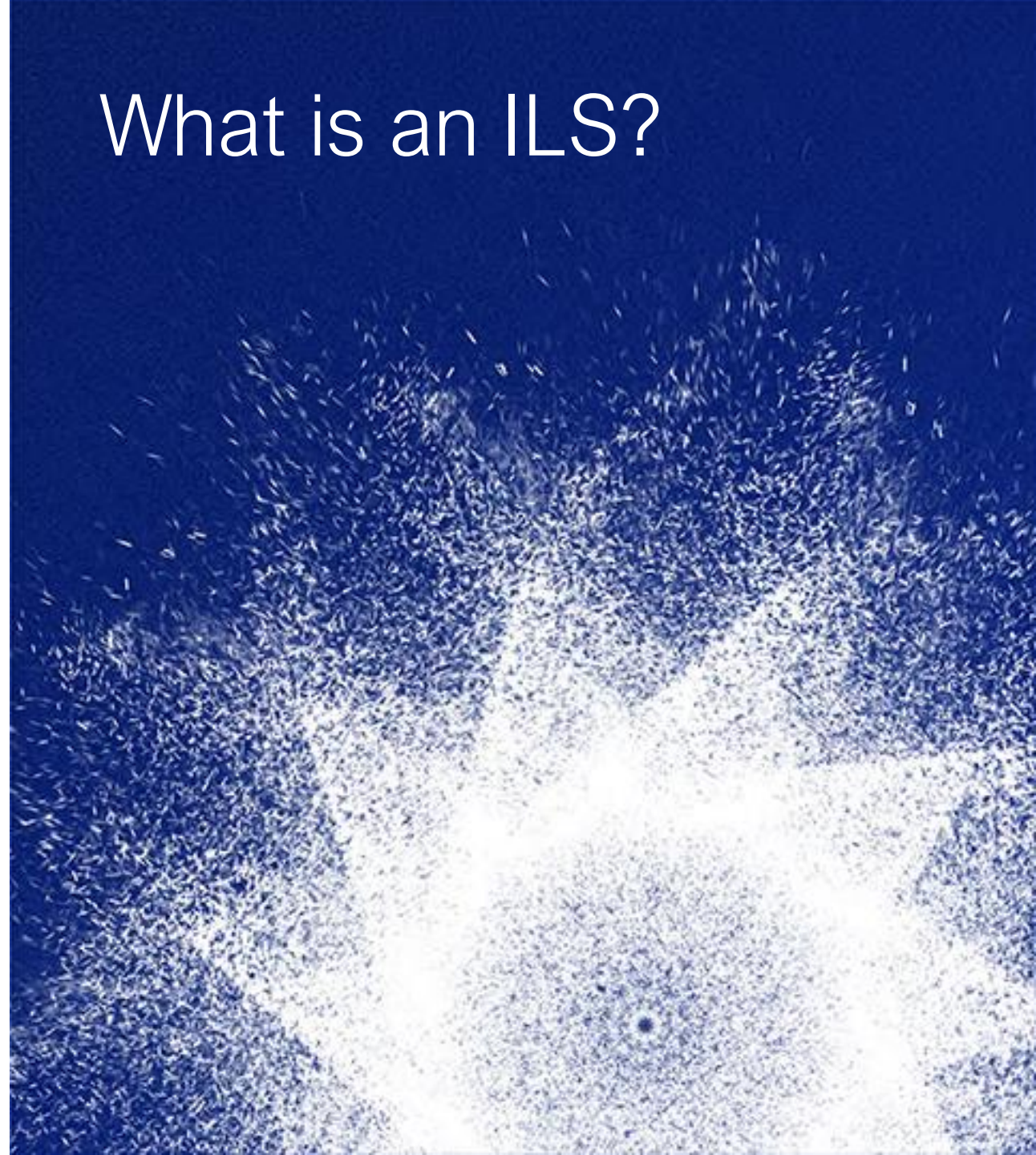
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An **interlaboratory study (ILS)** is a multi-lab study conducted to produce data for developing a **Precision & Bias statement** and **Research Report**. This data demonstrates the expected variability of a test method.

We'll discuss...

- The purpose and importance of an ILS
- The process involved in conducting an ILS
- The benefits of participating in an ILS

What is an ILS?



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In 2004, the **Board of Directors** approved the creation of a unit to strengthen the perceived quality of **ASTM Test Methods** by:

→ Facilitating the production of data to develop Precision & Bias statements and Research Reports, demonstrating the variability of our test methods

→ Providing administrative and financial support to all ASTM committees

→ Ensuring the confidentiality of participating labs

Note: ASTM is not a lab.
We cannot test or receive samples.

Who we are and what we do ...



Form & Style Manual (Blue Book)

A21. Precision and Bias (Mandatory)

A21.2.1 A statement on precision allows potential users of the test method to assess in general terms its usefulness in proposed applications.

A21.2.3 Every test method shall contain: (1) a statement regarding the precision of test results obtained in the same laboratory under specifically defined conditions of within-laboratory variability (repeatability conditions); and (2) a statement regarding the precision of test results obtained in different laboratories (reproducibility conditions).



ILS Phases

Ruggedness Study

1

Finalize Test
Method

2

Pilot Program
(repeatability)
F&S requirement
met for 5 years

3

Full ILS
(repeatability +
Reproducibility)

4

ILS Process Overview



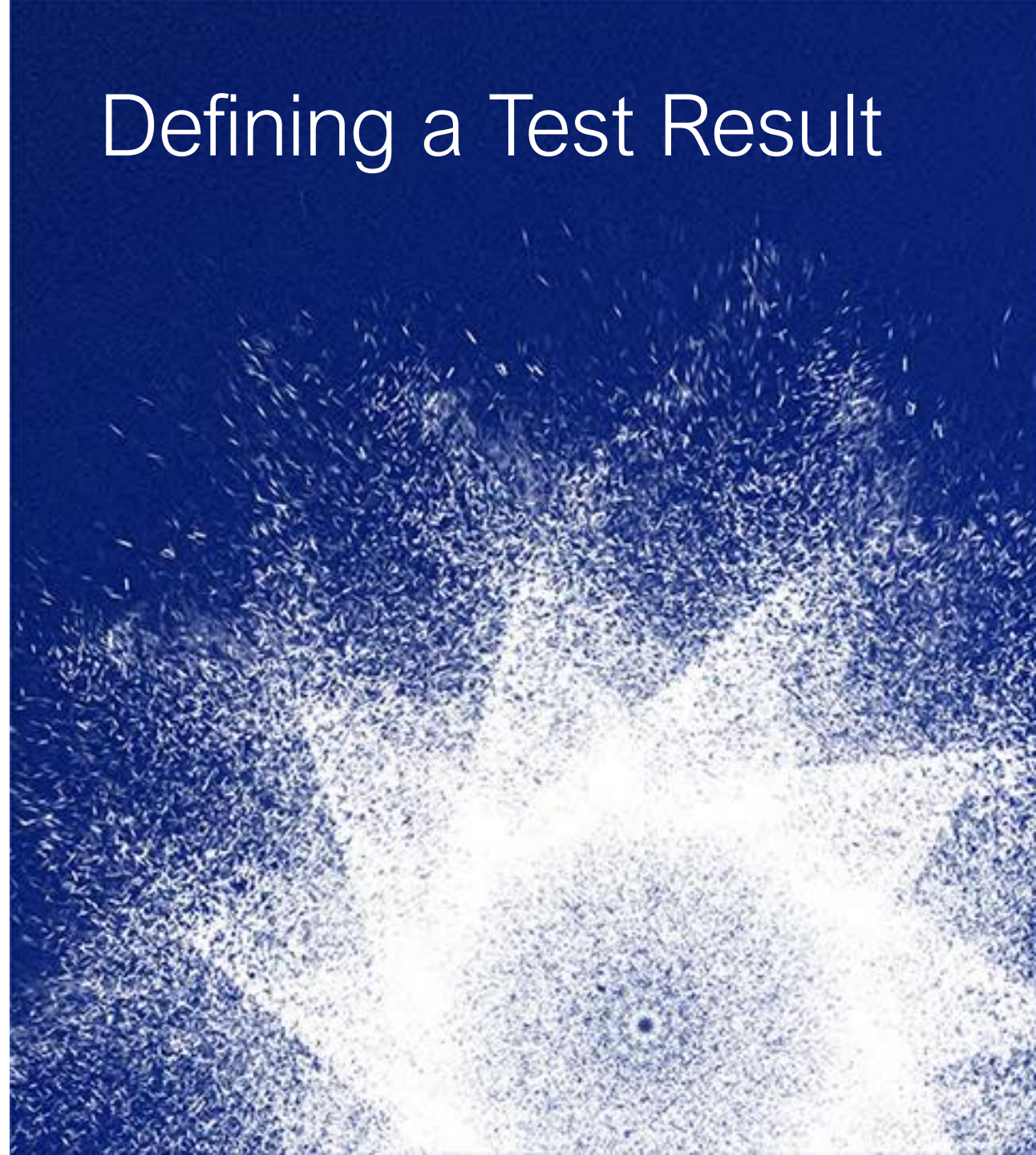
7

A **test result** should be uniquely defined by the **Test Method**. Review your standard for specifics:

- Single test determination
- The average of two or more determinations
- Subject to multiple if/then statements

One **test result** = one reportable replicate for ILS purposes. A test result is the actual number you would report to a client. We will need multiple test results (replicates), on each material, from every operator to calculate precision.

Defining a Test Result



Test Result *Example*

Test Method X requires the average of 5 individual measurements to be reported as a single test result (replicate). Your ILS calls for 3 replicates. A total of 15 individual measurements must be taken to produce the 3 replicate test results (each the average of 5 measurements) required from each participating laboratory in this hypothetical.

Laboratory Data Report Form

Hardness							
Individual Measurement 1	3		Individual Measurement 1	4		Individual Measurement 1	4
Individual Measurement 2	4		Individual Measurement 2	6		Individual Measurement 2	7
Individual Measurement 3	3		Individual Measurement 3	5		Individual Measurement 3	5
Individual Measurement 4	7		Individual Measurement 4	3		Individual Measurement 4	4
Individual Measurement 5	5		Individual Measurement 5	6		Individual Measurement 5	5
Average:	4.4		Average:	4.8		Average:	5

Full ILS Requirements

- **Tests:**

Listed in the procedure, and again in the reporting section

- **Laboratories:**

Usually looking to start with at least 10-12 (minimum 6)

- **Materials:**

Should span the scope of the standard, often 3-7

- **Replicates:**

Generally, 2-10, but sometimes more



ASTM Staff Assistance

The ASTM staff can assist with various aspects of the Interlaboratory Study, including:

Designing an
Interlaboratory
Study

Identifying
potential
samples

Soliciting
volunteer
laboratories

Finding an
available
supplier

Ordering and
purchasing
samples

Contracting with
a distributor

Reviewing
laboratory
instructions

Managing
shipping
expenses

Collecting and
analyzing data

Producing a
draft precision
statement

Compiling
information for
the Research
Report

Recognizing
participating labs

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→ Encourages input from active Committee volunteers and non-members, broadening the range and diversity of the study participants.

→ Allows the study to most accurately demonstrate expected “real-world” precision.

→ Ensures scientific neutrality of ASTM in reviewing test data (random lab numbers are assigned to all of the participants).

→ Provides a value-added Quality Assurance Program to participating laboratories.

Strengths of the ILS Program

- Monitor strengths and weaknesses of lab testing compared to peers through a statistical program
- Assess testing performance and adherence to written procedures by lab technicians
- Gain recognition in the final Research Report
- How could your lab benefit from participating?

Benefits of Lab Participation



Benefits to the Committees

- Meet the requirements of the Form and Style Manual
- Obtain valuable feedback on methods, leading to the correction of errors and omissions, as well as highlighting the need for technical updates
- Resource for increased membership



"I think there was a typo
in the lab instructions."

Sample Coding Requirements

To generate, the ILS Staff must have the *Laboratory Names* and *Material Names*.

Sample Labeling Matrix will be sent to the distributor by the ILS Staff.

ILS# 1903				
C1271 - Test Method for X-ray Spectrometric Analysis of Lime and Limestone				
Laboratory Name:				
Laboratory Technician:				
Date:				
Please submit completed data report forms to ILS@astm.org *				
CaO (%) - WDXRF, Pressed Pellet	Sample A	Sample B	Sample C	Sample D
Replicate 1				
Replicate 2				
Replicate 3				
MgO (%) - WDXRF, Pressed Pellet	Sample A	Sample B	Sample C	Sample D
Replicate 1				
Replicate 2				
Replicate 3				

Sample Name	Sample Code
Vulcan VGR4	A
Carmeuse Annville	B
Graymont Genoa	C
Vulcan VDO	D
CRM ECRM-782-1	E
Lhoist Clifton #3	F
Carmeuse Maple Grove	G
Vulcan VCA	H
Lhoist Clifton #1	I
Lhoist Clifton #2	J

Blind Sample Matrix

To generate, the ILS Staff must have *Laboratory Names*, *Material Names* and the *Number of Replicates*.

Sample Labeling Matrix below was sent to the distributor by the ILS Staff

Utilized by Committees D02, D16, D19 & D28

Sample Name/ Lab Name:	University of Calgary	Marathon Oil	Alberta Research Council	Phillips 66 OK	LyondellBase II	ExxonMobil Research	Agilent Technologies	Triton Analytics Corp	Envantage Inc.
Kerosene	1, 7	2, 12	5, 6	7, 9	4, 6	4, 7	2, 5	8, 11	7, 10
High Sulfur Diesel	3, 6	3, 10	9, 10	5, 10	2, 11	5, 10	9, 12	1, 4	2, 6
#2 Low Sulfur Diesel	5, 12	5, 11	4, 11	3, 11	8, 9	11, 12	1, 10	6, 10	4, 11
Aviation Turbine Jet A	2, 4	4, 6	2, 8	1, 6	3, 10	2, 8	3, 4	2, 9	5, 9
Ultra Low Sulfur Diesel	8, 11	7, 9	3, 7	2, 4	5, 7	1, 6	6, 11	3, 12	1, 3
Light Cycle Oil	9, 10	1, 8	1, 12	8, 12	1, 12	3, 9	7, 8	5, 7	8, 12

Data Report Form Instructions



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Helping our world work better

ILS# 1446

**ASTM F3203 - Test Method for Determination of Gel Content of Crosslinked Polyethylene (PEX)
Pipes and Tubing**

Basic Study Information:

Please have one Laboratory Technician conduct all ILS testing.

Please follow ASTM standard provided to you for this study.

Please complete the testing in the shortest possible period of time.

Data Entry:

Do not enter commas (1,234 --> 1234)

Do not report units

Submitting Data:

Please submit completed data report forms to ILS@astm.org

Laboratory understands and agrees that the data generated as a result of the services and provided to ASTM will be used in ASTM's business, to assist in developing a research report, consensus standard or adjunct thereto. Laboratory agrees to keep such data and results confidential and not to disclose or share the data/results with anyone else, without ASTM's written consent.

[Click here for a copy of the ASTM International's Intellectual Property Policy.](#)

Excel Data Report Form



ASTM INTERNATIONAL
Helping our world work better

ILS# 1823

Standard Test Method for Testing Uplift Resistance of Adhered Membrane Roofing Assemblies

Laboratory Name:

Laboratory Technician:

Date:

Please submit completed data report forms to ILS@astm.org*

Deflection at Finish at 15 psf (in)

5 ft x 5ft Roof Assembly

Replicate 1

Replicate 2

Replicate 3

Deflection at Finish at 30 psf (in)

5 ft x 5ft Roof Assembly

Replicate 1

Replicate 2

Replicate 3

Comments

*To ensure the integrity of your lab's data, ASTM can only accept the completed Excel data report form created for your specific study. Handwritten or PDF format data report forms will be returned to you for reentry in Excel.

Laboratory understands and agrees that the data generated as a result of this study, regardless of any further support or services provided by or to ASTM, will be used in ASTM's business, to assist in developing a research report, consensus standard or adjunct thereto. Laboratory agrees to keep such data and results confidential and not to disclose or share the data/results with anyone else, without ASTM's written consent.

[Click here for a copy of the ASTM International's Intellectual Property Policy.](#)

Precision



To calculate precision, we need
usable data from at **least 6
laboratories**
(The closer to 30, the better)

Each lab should report **2-10
replicate** test results per
material



The precision statement in an ASTM test method is not
meant to qualify it as good or bad



Example:
% Moisture in mulch vs.
aspirin

The published precision is
there to help a user of the
standard understand what can
be expected based on the real
world results of others

With 95% confidence, the same operator, in the same laboratory, using the same equipment, under the same conditions, should obtain results when testing the same material that agree within this range.

Example:

published repeatability range = 2.4 ppm

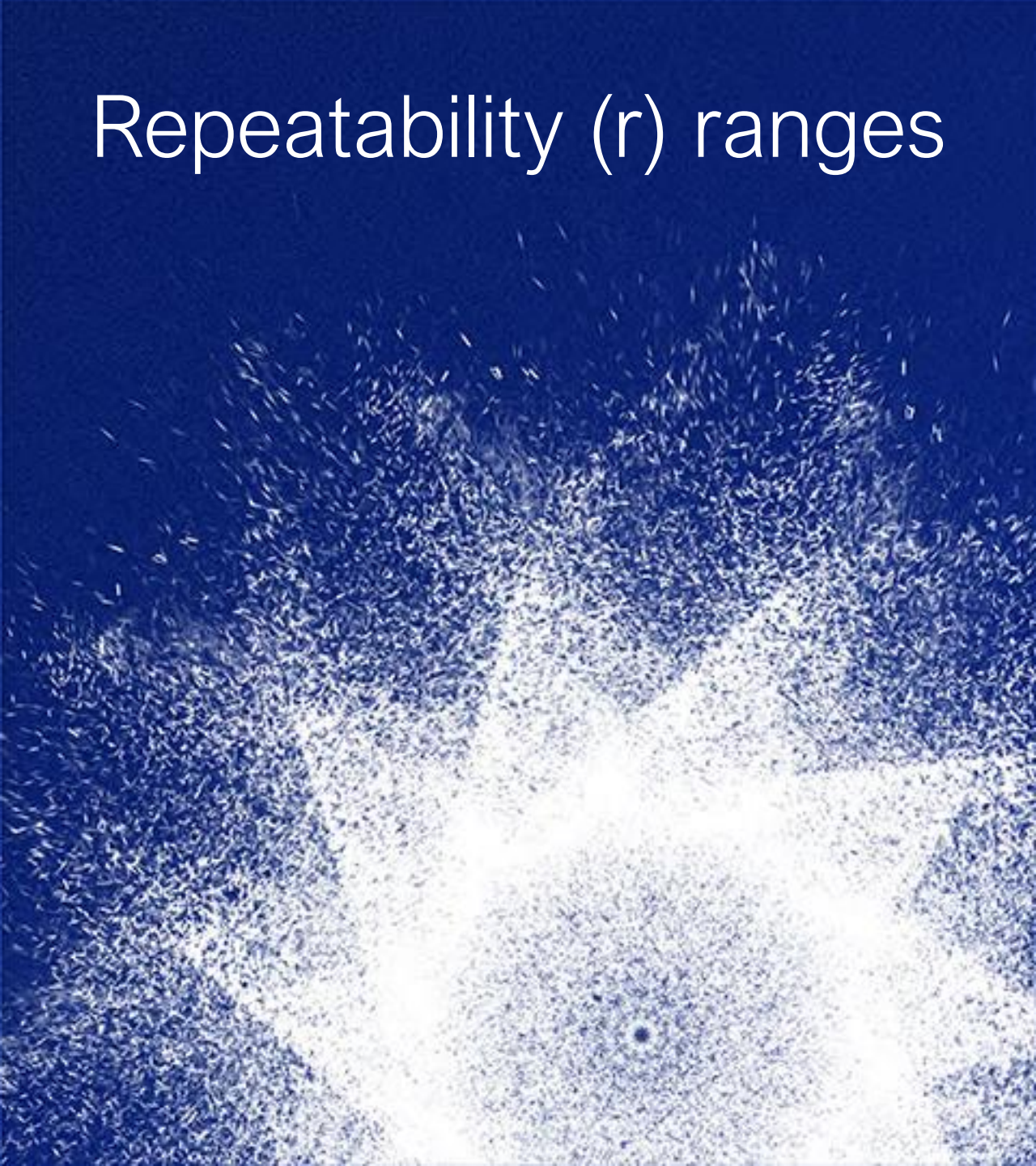
Test Result 1: 79.1 ppm

Test Result 2: 81.6 ppm

Results differ by 2.5 ppm, therefore: **Suspect**

*Internal laboratory investigation may be advisable

Repeatability (r) ranges



With 95% confidence, two operators, in different laboratories, using different equipment, under conditions meeting those specified in the standard, should obtain results when testing *the same material* that agree within this range.

Example:

published reproducibility range = 3.2 ppb

Test Result from Lab 1: 50.8 ppb

Test Result from Lab 2: 47.9 ppb

Results differ by 2.9 ppb, therefore:
As Expected

Reproducibility (R) ranges

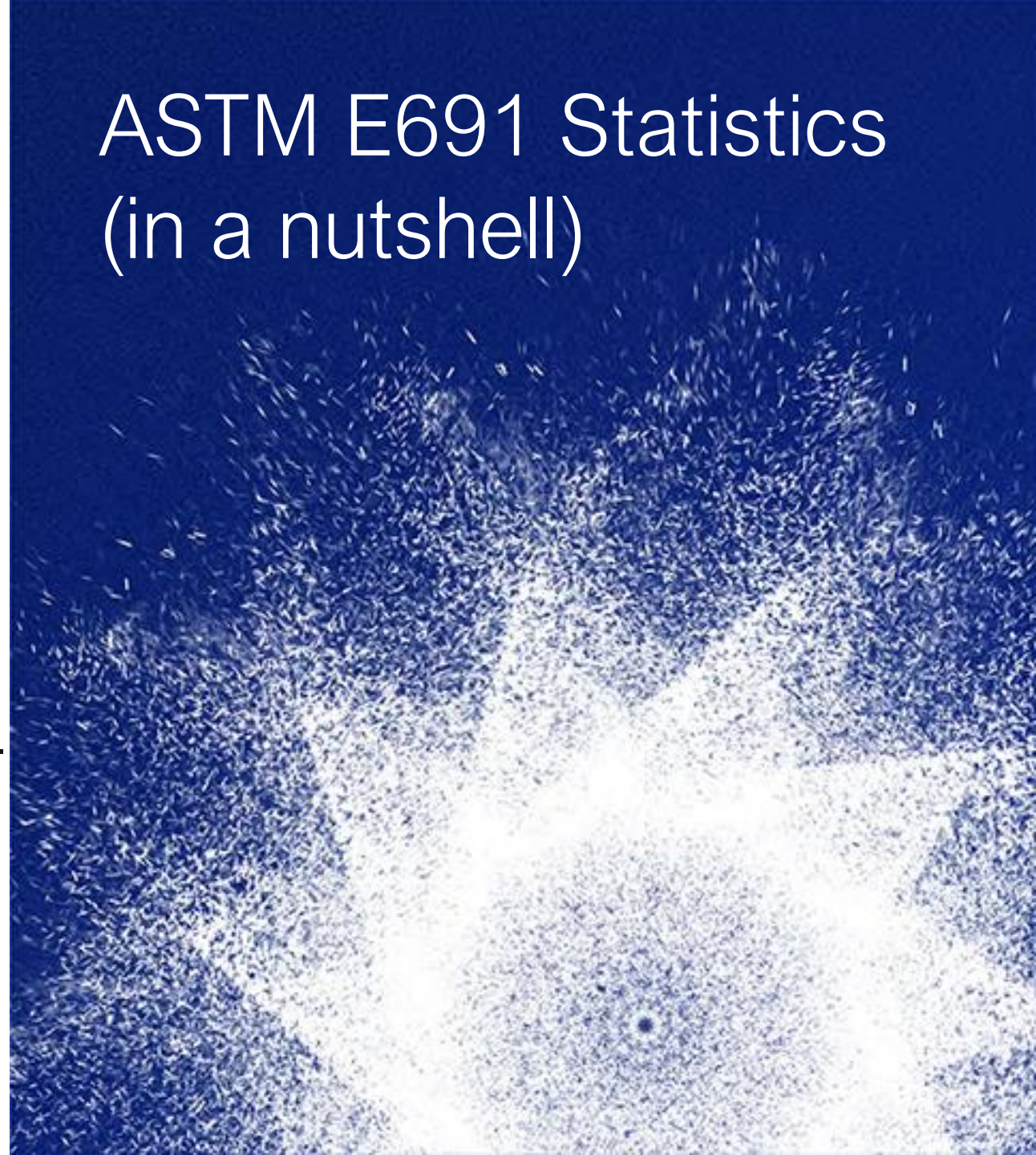


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E691 is useful for estimating the precision of different materials at varying levels. It calculates repeatability and reproducibility ranges for each material.

- Typically, 3-7 different materials span the range stated in the Scope of the standard
- Within laboratory precision is evaluated against a k-statistic, which measures variability among replicates in any one lab.
- Between laboratory precision is evaluated against an h-statistic, which compares lab averages among all participants

ASTM E691 Statistics (in a nutshell)



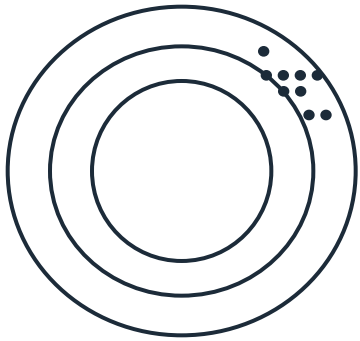
Bias

To calculate bias, we may be able to include a reference “standard” among the sample specimens distributed to the laboratories. Bias may be determined as the average discrepancy between the “known” value and the reported values.

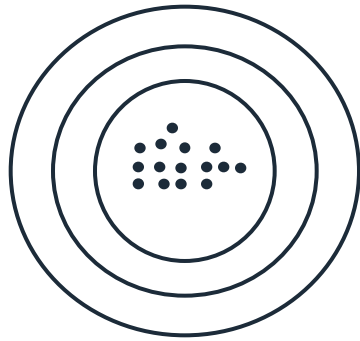


Precision and Bias

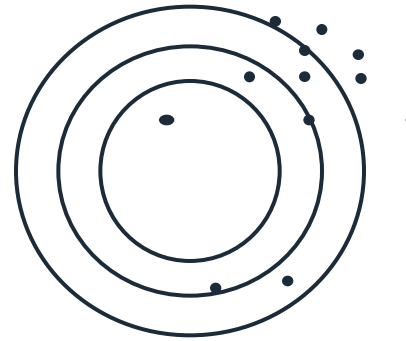
large bias + high precision
= low accuracy



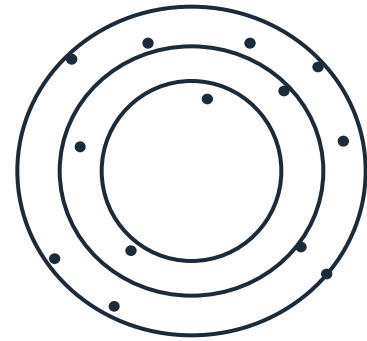
zero bias + high precision
= high accuracy



large bias + low precision
= low accuracy



zero bias + low precision
= low accuracy



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An ILS is not required for nonquantitative test results. Examples include pass/fail tests, rating scales, and color changes.

From Form and Style Manual (A21. Precision and Bias:

*A21.5.4 When a test method specifies that a test result is a **nonnumerical** report of success or failure or other categorization or classification based on criteria specified in the procedure, use a statement on precision and bias such as the following:*

Precision and Bias—No information is presented about either the precision or bias of Test Method X0000 for measuring (insert here the name of the property) since the test result is nonquantitative.

Nonquantitative Test Results

For pilling:

5—no pilling
4—slight pilling
3—moderate pilling
2—severe pilling
1—very severe pilling

For fuzzing:

5—no fuzzing
4—slight fuzzing
3—moderate fuzzing
2—severe fuzzing
1—very severe fuzzing

Important Reminders



Your standard may allow you to correct for bias, but you cannot correct for imprecision.



An ILS may be used to demonstrate improvement as standards are modified.
For example: Compare results from Method A with those from Method B.



Whatever materials we are testing should be as homogeneous as possible (i.e., from the same batch and lot).

Why Do You Need an Interlaboratory Study Program?

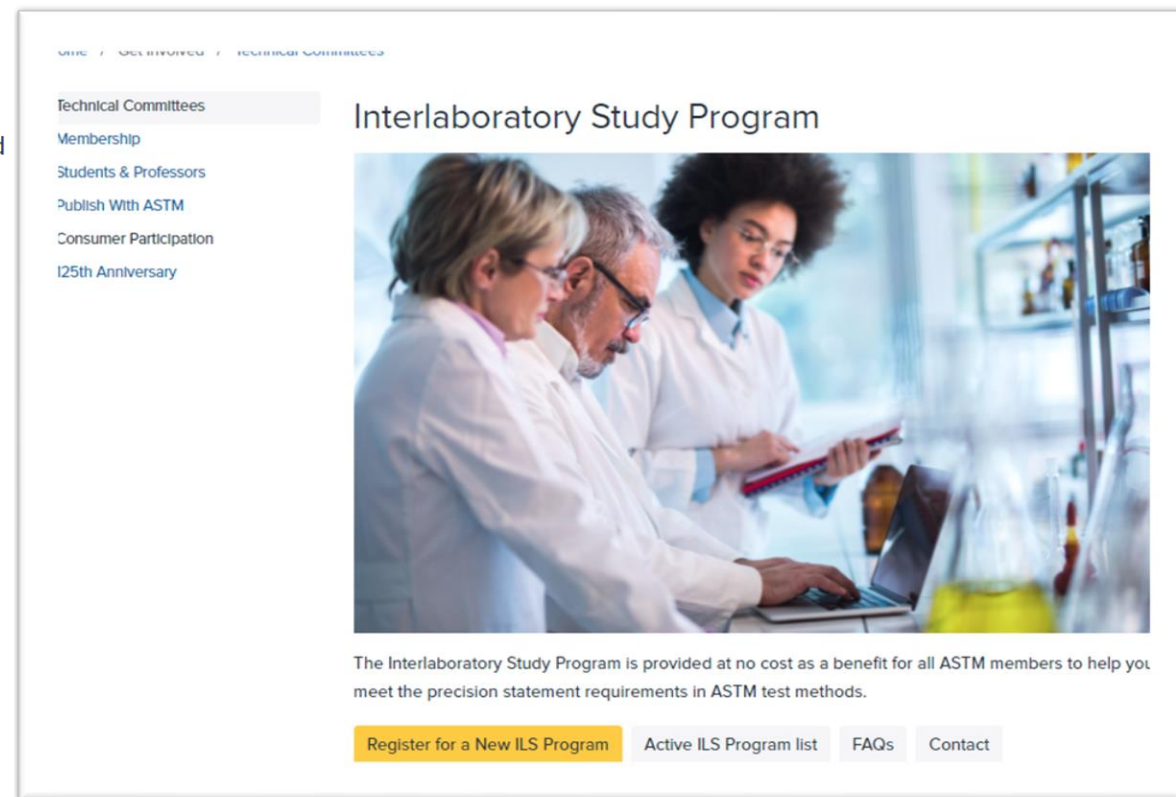
Precision and Bias in ASTM Test Methods

All ASTM standard test methods must include a precision and bias statement, per [Section A.21](#) Form and Style for ASTM Standards. These statements strengthen the perceived quality of the standard test method. They also let users know that a test method has been laboratory tested.

The two measurements that serve to express precision in the evaluation of a standard test method are repeatability and reproducibility:

- **Repeatability** - addresses variability between independent test results gathered from within a single laboratory (otherwise known as intralaboratory testing)
- **Reproducibility** - addresses variability among single test results gathered from different laboratories (otherwise known as interlaboratory testing).

While Bias is defined as a systematic error that contributes to the difference between the mean of a large number of test results and an accepted reference value. When included in an ASTM test method, this statement describes the bias. It is important to remember that if an accepted reference value is not available, then the bias cannot be established. However, if the bias is unknown but the direction or bounds of the bias can be estimated, this information should be included in the bias statement.



Technical Committees

Membership

Students & Professors

Publish With ASTM

Consumer Participation

I25th Anniversary

Interlaboratory Study Program

The Interlaboratory Study Program is provided at no cost as a benefit for all ASTM members to help you meet the precision statement requirements in ASTM test methods.

[Register for a New ILS Program](#) [Active ILS Program list](#) [FAQs](#) [Contact](#)

Committee Week Reports



ILS# 1812 Committee Week Status Report

C0562, Test Method for Moisture in a Graphite Sample

June 23, 2023

Subcommittee: D02.F0

Technical Contact: Helen Mayer

Staff Manager: Alyson Fick

Work Item Number: WK82612

Registered Date: July 28, 2022

Statistical Support: ASTM

Status: Data report form is on file. This ILS will be conducted alongside ILS #1811, and the data will be separated for processing at the end of testing. The technical contact is preparing the samples. The committee is okay with not blinding the samples. Please let ILS know if there have been any updates or assistance we can provide. Before testing and samples are shipped, ILS would be interested in hosting a pre-test conference call with the laboratories to review the data report form and any lab questions.

Tests:

1. Moisture (%)

Materials:

1. Low purity graphite in solid form - Supplied by: Amsted Graphite Materials, Helen Mayer
2. Low purity graphite in powder form - Supplied by: Amsted Graphite Materials, Helen Mayer
3. High purity graphite in solid form - Supplied by: Amsted Graphite Materials, Helen Mayer
4. High purity graphite in powder form - Supplied by: Amsted Graphite Materials, Helen Mayer



Technical Contacts with more than one ILS Program going to a specific meeting will receive one email with all ILS Committee Week Reports.



Sub chairs are cc'ed on the ILS Committee Week Report emails

Laos:

Lab Name	Contact Name		Data Submitted
Amsted Graphite Materials	Steve	Rittenhouse	
<u>Anovion</u>	Jeremy	<u>Schrooten</u>	
Asbury	Ryan	Weir	
<u>GrafTech</u>	Brian	Askey	
Mersen	Andy	<u>Covac</u>	
Morgan	Carlos	Lyon y Lyon	

Distributor:

1. Low purity graphite in solid form - Amsted Graphite Materials - Helen Mayer
2. Low purity graphite in powder form - Amsted Graphite Materials - Helen Mayer
3. High purity graphite in solid form - Amsted Graphite Materials - Helen Mayer
4. High purity graphite in powder form - Amsted Graphite Materials - Helen Mayer

Please email any missing information regarding this Interlaboratory Study to ILS@astm.org. ASTM will need all of the study information to complete the research report.

ASTM Form and Style Requirements

The ASTM Form and Style Manual (Section A29.1) states, "Where numerical data have been generated to establish the precision and bias of a test method, a research report is required."

→ Use the ASTM Word Research Report Template.

→ Make the draft research report available to committee members while the related precision statement is on ballot.

→ Research report numbers are assigned after the ballot is approved.

Research Reports

Contact: ResearchReports@astm.org

Parts of a Research Report

- List of participating laboratories
- Description of samples with their suppliers
- Laboratory instructions
- General description of equipment/ apparatus used
- Raw data (lab name's hidden)
- Statistical summary
- Precision and bias statement

This Research Report is issued under the fixed designation RR[RR #]. You agree not to reproduce or circulate or quote, in whole or part, this document outside of ASTM International Committee Society activities, or submit it to any other organization or standards body (whether national, international or other) except with the approval of the Chairman of the Committee having jurisdiction and the written authorization of the President of the Society. If you do not agree to these conditions, please immediately destroy all copies of this document. Copyright ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428. All rights reserved.

[Date RR # approved – ASTM to assign]

Committee [Committee] on [Committee Title]
Subcommittee [Subcommittee Number] on [Subcommittee Title]

Research Report [RR # – ASTM to assign]

Interlaboratory Study to Establish Precision Statements for ASTM
[Standard Designation Number], [Standard Title]

Technical contact:

[Technical Contact Title] [Technical Contact First Name]
[Technical Contact Last Name],
[Technical Contact Company]
[Technical Contact City], [Technical Contact State] [Technical Contact Zip]
[Technical Contact Country]
[Technical contact phone]
[Technical contact email]

ASTM International
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959

The ILS team is here to help you when developing your Research Report.

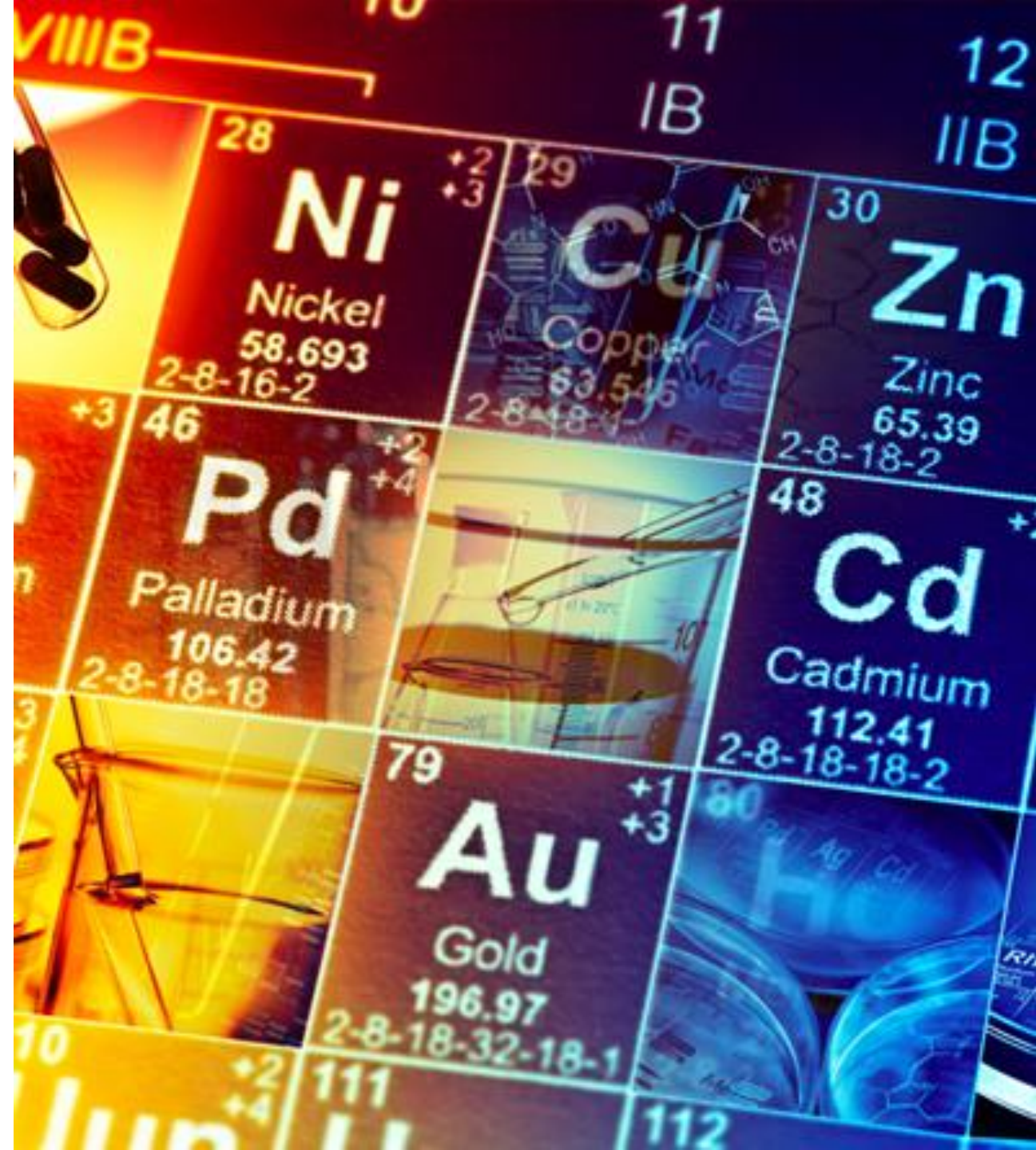
Contact us for assistance with:

- Generating research reports from ILS projects
- Reformatting older reports to fit the ASTM Research Report Template.
- Obtaining research report numbers

Research Report Assistance

Establishing New Programs

- Concept registered as a **Work Item**
- Program registered through **MyASTM** as an ILS Program
- Initial conference call with the technical contact from the committee to establish the **basic study parameters**
- Experimental design with input from the committee's **statistical support** person, if available
- Identification of study materials, suppliers, a distributor, and volunteer laboratories



MyASTM Login

https://secure.astm.org/login?newApproach=true&redirectUrl=aHR0cHM6Ly9tZW1iZXluYXN0bS5vcmc=

IE 2.0 CDS Admin ASTM IT Operation... Intranet- MCS MCS2



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Sign In

Username

Password

[Forgot Password?](#) [Contact Support](#)

[Sign In](#)

Select: *Interlaboratory Study (ILS)*

MyAccount

Membership

MyCommittees

Manage Committees

Change Of Employment

Committee Profile

Invite a Colleague

Membership Info

Recent Activity

Orders

Compass

Tracker

Account#: 000472556

Caitlin Farrell

cfarrell@astm.org

ASTM International

MyASIM / Membership / MyCommittees

MyCommittees

Committee A01 on Steel, Stainless Steel and Related Alloys

Ballots

Rosters

Meetings & Symposia

Minutes & Agendas

Committee Documents

Standards Tracking

Committee B09 on Metal Powders and Metal Powder Products

Ballots

Rosters

Meetings & Symposia

Minutes & Agendas

Committee Documents

Standards Tracking

Committee C01 on Cement

Ballots

Rosters

Meetings & Symposia

Minutes & Agendas

Committee Documents

Standards Tracking

Committee C07 on Lime and Limestone

Ballots

Rosters

Meetings & Symposia

Minutes & Agendas

Committee Documents

Standards Tracking

Committee C08 on Refractories

Ballots

Rosters

Meetings & Symposia

Minutes & Agendas

Committee Documents

Standards Tracking

MyTools

MyOutstanding Ballots 52

MyNext Meetings 25

MyWork Items

MyCollaboration Areas

Ballots & Work Items

Meetings, Minutes & Agendas

Interlaboratory Study (ILS)

Terminology Dictionary

Plan Online Mtg/Conf

Member Training

Register a New Study

[MyASTM](#)

[LS Home](#)

[ASTM.org](#)

[Register or Edit a Study](#)

Need Help?

The ILS Staff can help
you finish your registration.

email: ILS@astm.org

[MyASTM](#) / [Membership](#) / [MyCommittees](#) / ILS Program Registration

ASTM Interlaboratory Study (ILS) Program

Choose from the following options:

☐ I need to register an ILS Program for a Revision or New Standard.

Please navigate through all of the registration pages to submit your ILS Program to the ASTM ILS Staff. The registration will collect details on the standard, tests, samples and laboratories that will be utilized in the study. Filling in all information is not required to submit an ILS Program.

☐ I need to revise an existing ILS Program.

Technical contact understands and agrees that the data generated as a result of this study, regardless of any further support or services provided by or to ASTM, will be used in ASTM's business, to assist in developing a research report, consensus standard or adjunct thereto. Technical contact agrees to keep such data and results confidential and not to disclose or share the data/results with anyone else, without ASTM's written consent. For a copy of the ASTM International's Intellectual Property Policy click [here](#).

[Continue](#)

Committee & Standard Information

[Committee >](#) [Contacts >](#) [Tests >](#) [Materials >](#) [Labs >](#) [Docs >](#) [Summary >](#) [Complete](#)

 Indicates a required field.

 Sponsoring Committee

D19 - Water

Sponsoring Subcommittee

D19.04.00 - Methods of Radiochemical Analysis

 Does this program relate to an existing ASTM standard?

☒ Yes

☐ No

 ASTM Standard

D3865 - Test Method for Plutonium in Water

Standard Title

Test Method for Plutonium in Water

Work Item 

WK77422

Continue

Contact Information

[Committee >](#) **[Contacts >](#)** [Tests >](#) [Materials >](#) [Labs >](#) [Docs >](#) [Summary >](#) [Complete](#)

Technical Contact

First Name	Last Name	Email
Tom	Patten	tom.patten@pacelabs.com

Statistical Support

Choose from the following options:

- ☒ ASTM to assist with statistical support.
- ☐ I will provide statistical support for this ILS.
- ☐ A committee member will provide statistical support.

Select One



- ☐ Statistical support will be provided by the following person:

Continue

Test Information

[Committee](#) > [Contacts](#) > **Tests** > [Materials](#) > [Labs](#) > [Docs](#) > [Summary](#) > [Complete](#)

Tests can be re-ordered by clicking and dragging the numbers, or by using the up/down arrow buttons.

Tests ⓘ	Units of Measure ⓘ
1.) ▲ ▼	

Add Test

Continue

Materials, Supplier(s) & Distributor(s) Information

Material (sample) ⓘ

Material Supplier (company name) ⓘ

Supplier Contact First Name

Supplier Contact Last Name

Supplier Email

☐ The distributor is the same as the supplier.

Material Distributor (company name) ⓘ

Distributor Contact First Name

Distributor Contact Last Name

Distributor Email

Save And Add Another

Please fill in the Lab Contact Information form and email it back to ils@astm.org



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Lab Info Form

[Click here to email this completed lab info form to: ils@astm.org](mailto:ils@astm.org)

[illegible]

If you only have a few labs, you can input their contact information [here](#).

Continue



Lab Information Form

[illegible]

Upload Documents

[Committee >](#) [Contacts >](#) [Tests >](#) [Materials >](#) [Labs >](#) **[Docs >](#)** [Summary >](#) [Complete](#)

Have any documents to share with the ILS Staff before our initial call? Use the drag and drop box below to attach those files to your ILS Program.

Drag and Drop to upload or [choose a file](#)

We accept pdf, ppt, pptx, xls, xlsx, doc, docx file formats, under 4MB size. Maximum 3 files are allowed. If you have more files, please send them as email to ils@astm.org.

File ⓘ	Date Uploaded ⓘ
--------	-----------------

Continue

Registration Summary

Committee /

Contacts /

Tests /

Materials /

Labs /

Docs /

Summary /

Complete

Note: Your ILS Number: 2019. Please add this ILS number to all emails and study documents.

Select to Edit

SUBMIT REGISTRATION TO ASTM

Committee

Committee	D19 - Water	
Sub Committee	D19.04.00 - Methods of Radiochemical Analysis	
Related Standard	D3865 - Test Method for Plutonium in Water	
ILS Title	Test Method for Plutonium in Water	
Work Item	WK77422	

Contacts

Technical Contact		
First Name	Last Name	Email
Tom	Patten	tom.patten@pacelabs.com

Statistical Support

ASTM to provide statistical support

Tests

Tests ⓘ

Units of Measure

Materials

Testing Material (sample) ⓘ

Material Supplier ⓘ

Distributor ⓘ

Labs

Laboratory ⓘ

Technical contact understands and agrees that the data generated as a result of this study, regardless of any further support or services provided by or to ASTM, will be used in ASTM's business, to assist in developing a research report, consensus standard or adjunct thereto. Technical contact agrees to keep such data and results confidential and not to disclose or share the data/results with anyone else, without ASTM's written consent. For a copy of the ASTM International's Intellectual Property Policy click [here](#).

SUBMIT REGISTRATION TO ASTM

Key Takeaways

- ✓ One **lab technician** should conduct all **ILS testing** in each participating laboratory.
- ✓ Labs should follow the **ASTM standard** provided for the ILS and complete the testing in the **shortest possible period of time**.
- ✓ For a **full ILS**, we need good usable data from a **minimum of 6 labs**.
- ! **Do not send samples to ASTM Headquarters!**
- ✓ The **ILS Program** is a **FREE member benefit**, available to all committees, for members working on **ASTM Test Methods**.

Questions



Additional Classroom for Member Trainings

New Member Orientation & Training

Balloting & Handling Negatives Votes

WebEx Training

Roster Maintenance

Process of Developing & Revising a Standard

Task Group Chair & Technical Contact Responsibilities

Subcommittee Chair's Duties and Responsibilities

Planning Symposia & Workshops.

Collaboration Area Training



ADVANCING STANDARDS
TRANSFORMING MARKETS

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