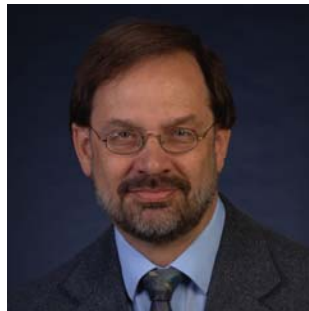


The International Metrology Resource Registry

Robert Hanisch
Office of Data and Informatics
Material Measurement Laboratory
National Institute of Standards and Technology



robert.hanisch@nist.gov



Goals

- Make it easy to locate metrology resources—data, services, facilities—*with characterization of the quality of the data* across the network of NMIs and Designated Institutes
- Maximize collaboration and coordination of efforts among NMIs
- Establish a global network of metrology resources for the academic and industrial research communities; increase impact

Goals for Today

2

- Demonstrate pilot registry
 - Discovery
 - Access
 - Adding a new resource
- Get feedback
 - Strengths
 - Improvements
 - Scope
- Agree on next steps

Pilot Project

- Initiated following October 2015 NMI Directors meeting where NIST proposal was discussed
- Participants
 - NIST USA
 - NRC-CNRC Canada
 - PTB Germany
 - NPL UK
 - KRISS Korea
 - VNIIMS Russia
 - NIM China
 - NMII/AIST Japan
- Kickoff meeting at BIPM, April
- NIST registry software installed at BIPM, May
- VNIIMS s/w engineer visited NIST, July
- Initial population of registry, September and October

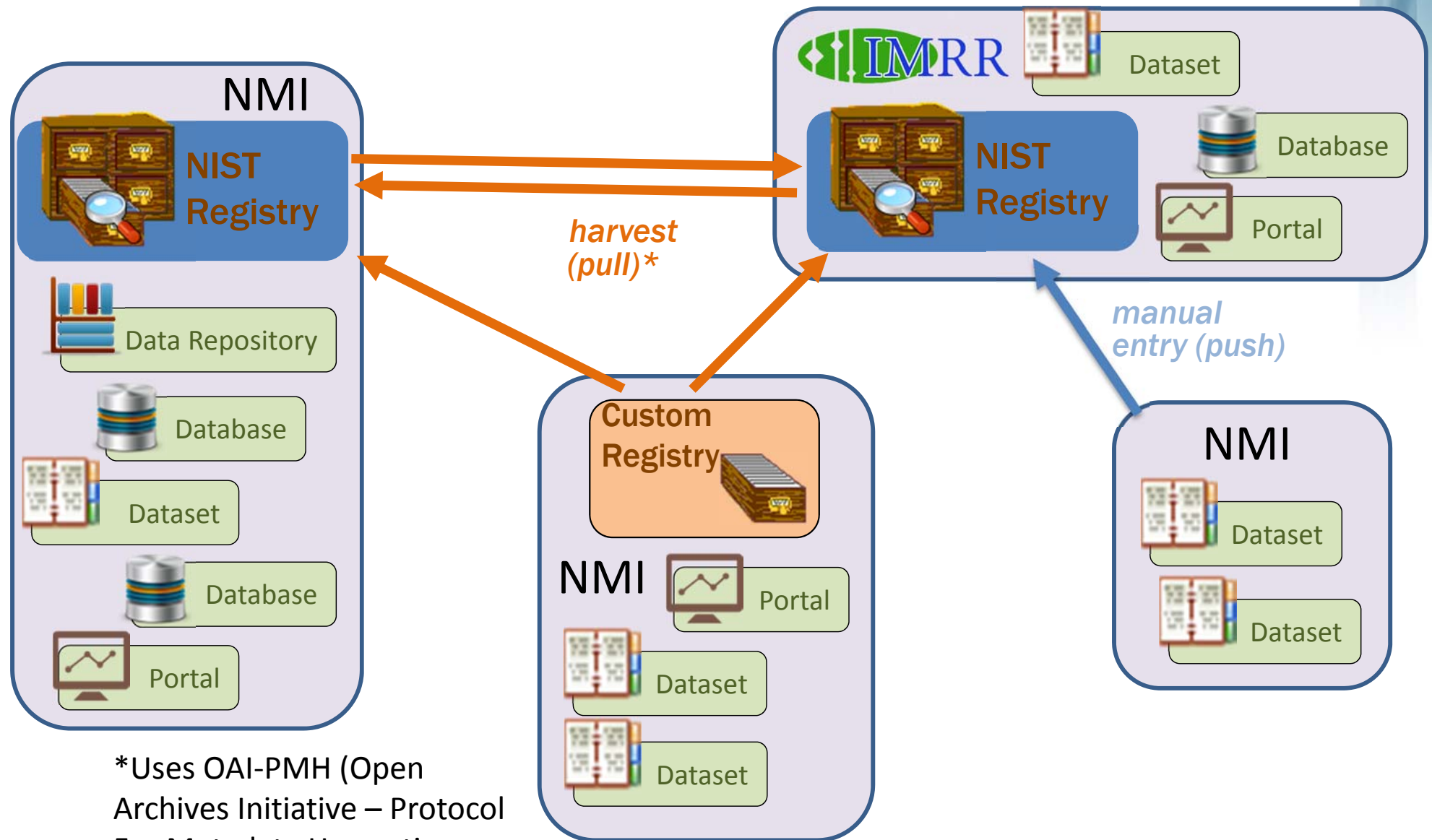


– BIPM

Pilot Project

- Implementation based on Materials Resource Registry developed at NIST
- Modified metadata
 - Metrology rather than materials science focus
 - Data quality characterization
- Federated architecture
 - Large NMIs or RMOs can run their own registries
 - Others can register with registry of their choice
 - Metadata records are synchronized with primary service at BIPM
- Open to NMIs and DIs only
 - Contributors must apply for account
 - Account requests reviewed and vetted
 - Metadata records reviewed

Federation



*Uses OAI-PMH (Open Archives Initiative – Protocol For Metadata Harvesting)

International Metrology Resource Registry

A Collaborative Effort of the International Metrology Community

[SEARCH FOR RESOURCES](#)[ADD YOUR RESOURCE](#)

Find Metrology Resources

This system allows for the registration of materials resources, bridging the gap between existing resources and the end users. The International Metrology Resource Registry functions as a centrally located service, making the registered information available for research to the materials community.

This is being developed at the Russian Research Institute for Metrological Service and is made available to solicit comments from the Material Science community. Please do not enter any proprietary data into this system.

Home Page

[Services](#)[Search for resources](#)[Add your resource](#)[Login](#)[Help](#)[Contact](#)

Demonstration

- <http://imrr.bipm.org>



International Metrology Resource Registry

[SEARCH FOR RESOURCES](#)

[ADD YOUR RESOURCE](#)

Find Resources

This system allows for the registration of resources, bridging the gap between existing resources and the end users. The International Metrology Resource Registry functions as a centrally located service, making the registered information available for research to the global community.

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Home Page

Services

[Search for resources](#)

[Add your resource](#)

[Dashboard](#)


[Logout](#)

[Help](#)

[Contact](#)



Search for Resources

Enter keywords, or leave blank to retrieve all records 

54
~~27~~ results



All Resources



Participating
Institutes



Databases



Datasets



Standards
Documents



Data Services



Data Portals



Metrology-
related
Software and
Tools

Brief Results View

Resource Type:

- All Resources
- Participating Institutes
- Databases
- Datasets
- Documents
- Data Services
- Data Portals
- Software

Data Providing Institutes:

- NIST-IMRR

[Clear Refinements](#)

Primary Audience:

- Education
- Public Outreach
- Research

Rights:

- Fee-Required
- Open-Login
- Proprietary
- Public

[National Physical Laboratory](#)

Resource Type: Organization: Metrology Institute

Resource Metadata

Go To

Sponsoring Country: UK

Subject: Home page

[Spectral Database for Organic Compounds](#)

Resource Type: Dataset: Database

Resource Metadata

Go To

Publisher: NMIJ, AIST

Sponsoring Country: Japan

Subject: H-1 and C-13 NMR, FT-IR, EI-MS, Organic compounds, Spectra

Data status: standard reference

Property type: chemical

[National Metrology Institute of Japan , AIST](#)

Resource Type: Organization: Metrology Institute

Resource Metadata

Go To

Sponsoring Country: Japan

Subject: NMIJ home page

[NIST ITS-90 Thermocouple Database](#)

Resource Type: Dataset: Database

Resource Metadata

Go To

Publisher: NIST

Sponsoring Country: USA

Subject: ITS-90, emf, reference function, temperature, thermocouple, thermometer

Detailed Results View

Resource Type:

- All Resources
- Participating Institutes
- Databases
- Datasets
- Documents
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- Software

Data Providing Institutes:

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[Clear Refinements](#)

Primary Audience:

- Education
- Public Outreach
- Research

Rights:

- Fee-Required
- Open-Login
- Proprietary
- Public

National Physical Laboratory*Resource Type:* Organization: Metrology Institute

Resource Metadata

Go To

Abbreviation: NPL*Sponsoring Country:* United Kingdom (UK)*Home page:* <http://www.npl.co.uk>**Contact Information***name:* Graham Sims*emailAddress:* graham.sims@npl.co.uk**Description:**

NPL is a world-leading centre in the development and application of highly accurate measurement techniques. As the UK's national standards laboratory, NPL underpins the national measurements system, ensuring consistency and traceability of measurements throughout the UK. We offer a unique range of measurement services, contract research, consultancy and training services. Other areas of expertise include the design and characterisation of engineering materials and mathematical software, especially its application to measurement and instrumentation.

Subjects: Home page**Spectral Database for Organic Compounds***Resource Type:* Dataset: Database

Resource Metadata

Go To

*Subtitle:**Abbreviation:* SDBS*Publisher:* NMIJ, AIST (Japan)

Detailed Results View

Resource Type:

- All Resources
- Participating Institutes
- Databases
- Datasets
- Documents
- Data Services
- Data Portals
- Software

Data Providing Institutes:

- NIST-IMRR

Clear Refinements

Primary Audience:

- Education
- Public Outreach
- Research

Rights:

- Fee-Required
- Open-Login
- Proprietary
- Public

National Physical Laboratory

Resource Type: Organization: Metrology Institute

Resource Metadata

Go To

Abbreviation: NPL

Sponsoring Country: United Kingdom (UK)

Home page: <http://www.npl.co.uk>

Contact Information

name: Graham Sims

emailAddress: graham.sims@npl.co.uk

Description:

NPL is a world-leading centre in the development and application of highly accurate measurement techniques. As the UK's national standards laboratory, NPL underpins the national measurements system, ensuring consistency and traceability of measurements throughout the UK. We offer a unique range of measurement services, contract research, consultancy and training services. Other areas of expertise include the design and characterisation of engineering materials and mathematical software, especially its application to measurement and instrumentation.

Subjects: Home page

Spectral Database for Organic Compounds

Resource Type: Dataset: Database

Resource Metadata

Go To

Subtitle:

Abbreviation: SDBS

Publisher: NMIJ, AIST (Japan)



resourceType: Dataset: Database
title: Spectral Database for Organic Compounds
altTitle: Subtitle:
altTitle: Abbreviation: SDBS
publisher: NMIJ, AIST
sponsoringCountry:
name: Japan

homePage: <http://sdfs.db.aist.go.jp/>

contact:
name: Takeshi SAITO
emailAddress: takeshi.saito@aist.go.jp

contact:
name: Hiroshi WATANABE
emailAddress: hiroshi-watanabe@aist.go.jp

description: SDBS is an integrated spectral database system for organic compounds, which includes 6 different types of spectra under a directory of the compounds. The six spectra are as follows, an electron impact Mass spectrum (EI-MS), a Fourier transform infrared spectrum (FT-IR), a H-1 nuclear magnetic resonance (NMR) spectrum, a C-13 NMR spectrum, a laser Raman spectrum, and an electron spin resonance (ESR) spectrum. We started the studies on the spectral database system in early 1970s. The construction of the database in the present format was started in 1982 in a mainframe computer. In 2001, National Metrology Institute of Japan (NMIJ) under National Institute of Advanced Industrial Science and technology (AIST) started to manage and to maintain the SDBS. Currently, EI-MS, H-1 and C-13 NMR, FT-IR, and the compound dictionary are active for correcting and maintenance of the data. Since 1997, SDBS has opened to the public with free of charge through the internet.

subject: H-1 and C-13 NMR
subject: FT-IR
subject: EI-MS
subject: Organic compounds
subject: Spectra

measures:
propertyType: chemical
dataCollectionMethod: experimental
materialType: organic
dataStatus: standard reference

Resource Type:

- All Resources
 Participating Institutes
 Databases
 Datasets
 Documents
 Data Services
 Data Portals
 Software

Data Providing Institutes:

- NIST-IMRR

Clear Refinements

Status of the data: :

- Prenormative
 Standard Reference

Application Area: :

- Forensics
 Fundamental Physics
 Manufacturing/Engineering
 Medical
 Metrology Standards
 Other
 Pharmaceutical
 Research

Type of properties measured: :

- Chemical
 Deteriorative
 Mechanical
 Optical
 Structural
 Thermal
 Transport

Spectral Database for Organic Compounds

Resource Type: Dataset: Database

Resource Metadata

Go To

Publisher: NMIJ, AIST*Sponsoring Country:* Japan*Subject:* H-1 and C-13 NMR, FT-IR, EI-MS, Organic compounds, Spectra*Data status:* standard reference*Property type:* chemical

NIST Chemical Kinetics Database

Resource Type: Dataset: Database

Resource Metadata

Go To

Publisher: NIST*Sponsoring Country:* USA*Subject:* arrhenius equation, chemical kinetics, chemical reaction, rate coefficient, rate constant*Data status:* standard reference*Property type:* chemical

NIST/EPA/NIH Mass Spectral Library with Search Program

Resource Type: Dataset: Database

Resource Metadata

Go To

Spectral Database for Organic Compounds SDBS

[Japanese](#)
[Introduction](#)
[Disclaimer](#)
[HELP](#)
[Contact](#)
[What's New](#)
[RIO-DB](#)
[FAQ](#)
[LINK](#)


Welcome to Spectral Database for Organic Compounds, SDBS.

This is a free site organized by [National Institute of Advanced Industrial Science and Technology \(AIST\)](#), Japan.

NMR: *T.Yamaji, T.Saito, K.Hayamizu, M.Yanagisawa and O.Yamamoto*

MS: *N.Wasada*

ESR: *K.Someno*

IR: *S.Kinugasa, K.Tanabe and T.Tamura*

Raman: *K.Tanabe and J.Hiraishi*

What's New

URL <http://sdfs.db.aist.go.jp>

If you can not access to the Search page, check this [FAQ](#).

| | |
|------------|--|
| 2016.09.17 | System maintenance on September 21, JST. The service will be unavailable for some hours. |
|------------|--|



Resource Type:

- All Resources
- Participating Institutes
- Databases
- Datasets
- Documents
- Data Services
- Data Portals
- Software

Data Providing Institutes:

- NIST-IMRR

Clear Refinements

Status of the data: :

- Prenormative
- Standard Reference

Application Area: :

- Forensics
- Fundamental Physics
- Manufacturing/Engineering
- Medical
- Metrology Standards

Publisher: BIPM

Sponsoring Country:

Subject:

National Standard Reference Data

Resource Type: InteractiveResource: Portal

Resource Metadata

Go To

Publisher: Korea Research Institute Standards and Science(KRISS) (2006)

Sponsoring Country: South Korea

Subject: Standard Reference Data

Data status: standard reference

Property type: optical, mechanical, thermal, chemical

Relevant substances:



정부3.0

참조표준조회

참조표준이란?

데이터센터

정보마당

활용자원마당

로그인

회원가입

센터소개

사이트맵

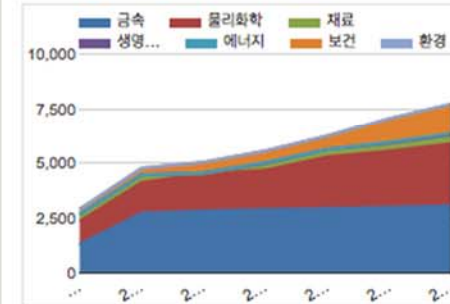
국가참조표준센터

정확하고 믿을 수 있는 공인된 과학기술데이터
참조표준, 과학기술의 핵심 인프라입니다.

참조표준 DB 검색 >



구축통계



참조표준 DB >

금속

물리화학

재료

생명과학

에너지

보건

환경



내열/구조강
인장물성

발전, 석유화학 설비는 물론
대형 교량과 같은 국가기간 산
업과 항공우주 ...

금속소재역학데이터센터

데이터건수 : 2410건



칠감소재
미세조직

스테인리스강으로 만든 선재/
봉재의 경우, 내식성, 내열성
등을 필요로 하...

포항산업과학연구원

데이터건수 : 491건



원자력재료
인장물성

금속결정에 높은 에너지를 갖
는 방사선 입자를 조사시키면
녹은(knock-...)

한국원자력연구원

데이터건수 : 20건

DB 더보기 >

SNS 소식

+



[과학] 가을 태풍의 피해가 더 심한 이유
는?



[보건분야] 눈만 살펴봐도 뇌질환 조기
진단을!



[데이터] 4차 산업혁명의 중심엔 데이터
가!



[과학] 친해지고 싶다면? '슬픈' 영화 vs '
재밌는' 영화

참조표준 활용사례

+



플라즈마 물성 참조표준 개발 및 활용



유기화합물 열역학 참조표준 활용사례



한국인 뇌 MR영상 참조표준 개발과 활용
사례



동적인장물성 참조표준 개발과 활용 사례

공지사항

+

- 측정불확도 9월 교육 안내 2016-08-02
- 참조표준 종합워크숍 개최 안내 2016-06-21
- 2016년도 국가참조표준 데이터센터 신... 2016-06-13
- 2016년 세계 측정의날 참조표준 수상... 2016-05-23
- 국가참조표준데이터개발보급사업 평가... 2016-01-15

최근 주요 활동

+



2015 참조표준
생체신호 불확도
연구...



2015 참조표준
사업 비교공개평
가위원회...



계량측정의 날
기념 참조표준
설명회 및...

Search for Resources



1 result



All Resources



Participating
Institutes



Databases



Datasets



Standards
Documents



Data Services



Data Portals



Metrology-related
Software and Tools

Brief Results View

Resource Type:

- All Resources
- Participating Institutes
- Databases
- Datasets
- Documents
- Data Services
- Data Portals
- Software

Data Providing Institutes:

- NIST-IMRR

FIZ/NIST Inorganic Crystal Structure Database

Resource Type: Dataset: Database

Resource Metadata

Go To

Publisher: NIST

Sponsoring Country: USA

Subject: X ray crystallography, X ray diffraction, XRD, crystallography, defect structures, electron diffractions, mixed crystal solid solutions, mixed crystals, modulated structures, neutron diffractions, nuclear magnetic resonance, polytype structures, synchrotron radiation, twinned crystals

Data status: standard reference

Clear Refinements

Status of the data: :

- Prenormative
- Standard Reference

Application Area: :

- Forensics
- Fundamental Physics
- Manufacturing/Engineering
- Medical
- Metrology Standards
- Other
- Pharmaceutical
- Research

Type of properties measured: :

- Chemical
- Deteriorative
- Mechanical
- Optical
- Structural
- Thermal
- Transport

General Data Collection Method: :

- Computational
- Experimental
- Observational

Type of material studied: :

- Biological
- Inorganic
- Organic

Availability: :

- Fee-Required
- Open-Login
- Proprietary
- Public

Type of media available: :

- Cd/Cdrom
- Dvd/Dvdrom
- Flash Drive
- Floppy Disc
- Other



International Metrology Resource Registry



[SEARCH FOR RESOURCES](#)

[ADD YOUR RESOURCE](#)

Find Resources

This system allows for the registration of resources, bridging the gap between existing resources and the end users. The International Metrology Resource Registry functions as a centrally located service, making the registered information available for research to the global community.

This is being developed at the Bureau International des Poids et Mesures and is made available to solicit comments from the global community. Please do not enter any proprietary data into this system.

Home Page

Services

[Search for resources](#)

[Add your resource](#)

[Dashboard](#)

[Logout](#)

[Help](#)

[Contact](#)



Just Getting Started? Tell us about your institution

Have you just logged in for the first time? Your first step to sharing your metrology data is to describe your institution as provider of data. [Start now.](#)

Finished? Thank you! Now users know you have useful data. Next, you can describe some of the data you have available. Start with the most important ones.

Describing Your Data Resources

To describe and share a data resource, choose one of the categories that best describes your resource. (These categories can be somewhat fuzzy, so don't worry too much about picking the wrong one.)

Database - A collection of data that is searchable in some way. Users can either search it on-line through a specialized web site or download the data and search it off-line.

Dataset - A collection of data that are available for download either as a single file or a set of files.

Dataset - An on-line standard or metrology-related document. This is intended primarily for **key standards documents** or supporting documents related to metrology provided directly by a Metrology Institute. Do not register articles published and available through normal journals.

Data Service - A web tool that calculates, analyzes, or otherwise interacts with data. Users may use the service either through a web page or programmatically through an API.

Data Portal - A web site that provides a suite of tools for interacting with a variety of data.



Software or Tool - A metrology-related software library or application. This can include software that calculates data based on standard algorithms, formulae, or parameters.



Add New Database

Please select one of the following options to Add your Resource. You can create a new record, continue editing a previously saved draft, or upload an XML file.

Create a new record:

Open a saved draft:

Upload an existing XML file: No file selected.

START

CANCEL





Add New Database

Tips:

- "Grey-ed out" labels indicate optional fields; click the plus (+) icon next to it to add a value
- Some fields can take add multiple values, click the plus (+) icon to show additional entry boxes
- To remove values or empty items (that are not required), click the minus (-) icon

Resource: a Database

localid

BTCLCQ5U972X5KMV7ABL

status active

Resource Type (do not edit): Dataset: Database

Database's Full Name:

Subtitle:

Database's Abbreviation: e.g. initials, acronym, etc.

Publishing Institution:

Home Country: +

Publication Year: +

Primary Identifier or Location:

Choice HomePageURL

Database home page URL: http://...

contact 

name

emailAddress

creator 

contributor 

 Give a summary of the contents of the database and how users may access it:

Subject keyword:

Enter a descriptive term; click ...

Application Area: 

 Metrology Information

Name of property measured: 

Type of properties measured: 

General Data Collection Method: 

Type of material studied: 

Material Name: 

Commercial or institutional supplier of material studied: 

Key chemical constituent sampled or addressed: 

Status of the data:

standard reference

Quality Metrics: Please answer the following questions:

Did the measurements make use of equipment set with standard calibrations, traceable to recognized primary standards and SI units?

Was a recognized standard method used to obtain the measurements?

Do the reported values include a full GUM-based characterization of uncertainties?

Are the reported values based on multi-site (e.g. round-robin) measurements?

Are the reported values accompanied by a description of the stability and/or maturity of the the samples measured?

Were the measurements conducted on certified reference materials (as defined by VIM3)?

Are the reported values accompanied by documentation of certification, a review report, or a reference to a peer-reviewed open-access paper describing the quality of the data?

Are the reported values compiled through a critical review of values reported in the peer-reviewed literature?

Access Information

Availability:

License Name:

URL for Terms of Use:

Available data access method:

- Did the measurements make use of equipment set with standard calibrations, traceable to recognized primary standards and SI units?
- Was a recognized standard method used to obtain the measurements?
- Do the reported values include a full GUM-based characterization of uncertainties?
- Are the reported values based on multi-site (e.g., round-robin) measurements?
- Are the reported values accompanied by a description of the stability and/or maturity of the samples measured?
- Were the measurements conducted on certified reference materials (as defined by VIM3)?
- Are the reported values accompanied by documentation of certification, a review report, or a reference to a peer-reviewed open-access paper describing the quality of the data?
- Are the reported values compiled through a critical review of values reported in the peer-reviewed literature?

- Did the measurements make use of equipment set with standard calibrations, traceable to recognized primary standards and SI units?
- Was a recognized standard method used to obtain the measurements?
- Do the reported values include a full GUM-based characterization of uncertainties?

These could serve as selection filters, e.g.,

- Show only those measurements conducted on CRMs
 - Include round-robin measurements
 - Also include data that has been critically reviewed
- Are the reported values based on multi-site (e.g., round robin) measurements?
 - Are the reported values accompanied by a description of the stability and/or maturity of the samples measured?
 - Were the measurements conducted on certified reference materials (as defined by VIM3)?
 - Are the reported values accompanied by documentation of certification, a review report, or a reference to a peer-reviewed open-access paper describing the quality of the data?
 - Are the reported values compiled through a critical review of values reported in the peer-reviewed literature?

Thanks

- NIST: Ray Plante, Sharief Youssef, Pierre Francois Rigodiat, Alden Dima, Mary Brady
- KRISS: Kyung Chae
- PTB: Joachim Meier
- NPL: Graham Sims
- NMIJ: Takeshi Saito
- VNIIMS: Alexander Koslov, Artem Guskov
- BIPM: Andy Henson, Janet Miles, Laurent Le Mée

For Discussion

- Does a system like this add value for your organization?
- Is the scope appropriate?
- Where do we need to make improvements?
- What is the right set of quality metrics?
- Other concerns?

<http://imrr.bipm.org/>

