Sample Queries

Do NMIs operate search interfaces?

General techniques:

* Text-based keywords that can be matched against descriptions

1. Need spectral atmospheric data in frequency range corresponding to particular chemical species, temperature range (need to search for parameters)
   1. Need means to identify substances (alloys, substrates, groups of substances)

* E.g. lead
* measurand
  1. Characteristics of substances

1. Find me resources that have measurements of particular properties (e.g. tensile strength)
2. Find/browse resources by category,
   1. Physicial properties
   2. Chemical properties
   3. Biomedical properties
3. Find data [of some type] that…; data types:
   1. Images
      1. Electron microscopy
      2. Optical microscopy
   2. Properties
      1. Single properties
      2. Multi-point properties
      3. Physical-types
         * See ISO 80000: defines names for properties
         * See also VIM (Vocab. Int. de Met.)
         * KCDB – key comparisons
   3. Spectra
      1. Infrared
      2. Xray diffraction
      3. NMR
      4. Mass-spec
      5. Raman
      6. esr
   4. Tabular
4. Find most accurate data for X property
5. Find X data from particular institute (authority)
   1. Need for standardizing institute names
   2. International Standard Naming Identifier (INSI)
   3. Provide alias names

DataCite:

Consider DataCite schema

Consider app profile of DataCite as Dublin Core

BIPM has metrology dictionaries: key comparison database

Metadata WG:

Joachi, Takeshi, Ray, Graham

Dublin Core:

* Identity
  + Identifier
  + Title
* Curation:
  + Contributor
  + Creator
  + Date
  + Publisher
    - Need to indicate if from a “designated institute”; if so, indicate the associated NMI
  + Contact
* Content
  + Description
  + Subject
    - Repeatable
    - Can be Classification Scheme
  + Type
  + Source
  + Relation
* Access
  + Format
  + Rights
  + [Landing Page]

Data Quality

Ways to describe

* “evaluated” data (tip of the iceberg)
* certification (?)
* uncertainty level (e.g. GUM)

Basic Quality requires metrological traceability and reviewed uncertainty measure

“Gold” – data went through one or more review processes (state processes); meets practices

“Silver” – paper reports particular practices (e.g. instruments were calibrated, …); no independent review

“Bronze” – unvetted,

“Unspecified”

(Default search constraint: “gold”)

Different quality level names? Alt: present a series of statements

Separate characterization of

Traceability, Uncertainty

Proposal: define three or four levels, NMI self-asserts

Policies for Data Access:

NIST, KRISS charge for some data

Some require login

Metadata:

Level of openness (3 levels: open, login-required, fee-required)

Link to License/TOS

Dependencies: required software, proprietary formats?

Languages:

Records in English

Field indicating the Language of the resource (from Datacite); using ISO code

NMIJ –

Spectral Database (SPDB)

* each spectrum has a (local) identifier

Thermophysical Properties Database System (TPDS)

* <http://tpds.db.aist.go.jp/tpds-web/>
* can describe database as a whole or individual measurements (11k)
  + each datum has a local identifier
* for demo, considering registering 10 datum points