Information from the KCDB Office

reporting May 2021 – May 2023

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CCM Meeting May 2023
KCDB present status

- Platform used daily as review support by all metrology areas
- Some 1635 individual user accounts
- Some 25,863 published CMCs and 1,825 comparisons available

May 2022 to May 2023

41 k users

101 k sessions

Source: Google Analytics

KCDB strongly supported by the CBKT programme
KCDB 2.0 impact

- Improved data integrity by avoiding copy/pasting and instead work on common data directly registered in the database
- Less CMC draft errors by possibility to select from an already applied vocabulary
- Reduced averaged review time as CMCs causing problems no longer hamper publication of a set of CMCs
- Reduced time for publication
- Direct access to up-to-date statistics on CMCs and comparisons for state and economies, RMOs
- New structure enables digitalization
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**Table 8** JCRB review durations in days for CMCs at different times.

<table>
<thead>
<tr>
<th></th>
<th>2004 – 2019</th>
<th>45th JCRB’</th>
<th>Sep. 2022”</th>
<th>Mar. 2023</th>
<th>KCDB 2.0*</th>
</tr>
</thead>
<tbody>
<tr>
<td>minimum</td>
<td>not computed</td>
<td>24</td>
<td>6</td>
<td>43</td>
<td>0</td>
</tr>
<tr>
<td>median</td>
<td>140</td>
<td>75</td>
<td>61</td>
<td>147</td>
<td>67</td>
</tr>
<tr>
<td>mean</td>
<td>188</td>
<td>85</td>
<td>95</td>
<td>126</td>
<td>98</td>
</tr>
</tbody>
</table>

*Computed for CMCs published from 9/2021 to 3/2022
**Computed for CMCs published from 3/2022 to 9/2022
*Computed from the KCDB 2.0 menu ‘Statistics on review performance’ for the whole period since 2020-01-01

*Source: KCDB Report, March 2023
KCDB 2.0 : Key numbers for CCM Publication

• 2979 CMCs in M published (2023-05-23)

• 361 CMCs published on the KCDB platform amongst which
  ○ 158 were drafted, reviewed and approved by JCRB Review.

• 255 KCs in M published (9 Final reports published and 19 registrations)

• 207 SCs in M published (18 Final reports published and 19 registrations)
KCDB 2.0 : Publication KC results

Extended graph of equivalence

6 RMOs KCs linked to CCM KCs
KCDB 2.0 - some highlights on recent developments

• Continuing improving the web platform based on users’ feedbacks and experiences using the platform:
  
  New NMI Secretary user account – Institute’s CMCs Overview

  Fine tuning of notifications

  New functionalities to support the review process
KCDB 2.0: Digitalization

Search “manually” and see the data on the screen.

Query for data

BIPM server
KCDB 2.0 : Query using an API

Use an API and collect machine readable data

Program software commands

Query for data

Machine readable data

API

BIPM server
Presently possible to carry out **menu based or key word based search for CMCs** on the KCDB using the API.

**Targeting to fulfill the FAIR principles**

- **Findable**
- **Accessible**
- **Interoperable**
- **Reusable**

KCDB should become interoperable:

- be based on the SI (already achieved)
- use an accepted **web ontology**
- considering existing **standards**
- use unique **identifiers**
KCDB 2.0 : Towards digital CMCs and interoperability

At the BIPM IN PROGRESS

1) SI Digital Reference Point including:
   • SI Units, prefixes
   • Kinds of quantity
   • Defining constants

2) Digital reference point for the service categories in PHYSICS and RI
Possible collaboration with CCM experts:

1) Data model to represent the service categories

**Anticipate work with the KCDB Office and BIPM Digital Transformation Team to develop this**

2) Harmonization of expression of quantities (each CMC to correspond to a kind of quantity)

• need for controlled content
KCDB QUERY – CMC ID

United Kingdom, NPL (National Physical Laboratory)

Calibration and Measurement Capabilities – CMCs

- Mass, Mass: **20 kg to 50 kg**
- Mass standard
- Absolute expanded uncertainty: **1.3 mg to 3 mg**
- Comparison in air
- Approved on 22 February 2023
- Institute service identifier: NPL/MM01

curl -X 'POST' \
'https://www.bipm.org/api/kcdb/cmc/searchData/quickSearch'\n-H 'accept: application/json' \n-H 'Content-Type: application/json' \n-d '{
  "page": 0,
  "pageSize": 20,
  "showTable": false,
  "keywords": "EURAMET-M-GB-00000FV6-2"
}'

json response

[  
{"versionApiKcdb": "1.0.7",  
"pageNumber": 0,  
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"data": [  
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  "statusDate": "2023-03-20",  
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  "metrologyAreaLabel": "M",  
  "rno": "EURAMET",  
  "countryValue": "United Kingdom",  
  "nmiCode": "NPL",  
  "nmiName": "National Physical Laboratory",  
  "nmiServiceCode": "NPL/M401",  
  "nmiServiceLink": "",  
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  "cmc": {  
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    "upperLimit": 50,  
    "unit": "kg"  
  },  
  "cmcUncertainty": {  
  
}}]
Other identifiers: CMCs

- Permanent identifier of every CMC exists
- CMC is machine accessible, reusable
- Identifier could be used by NMIs (e.g. on NMI’s homepage, on certificates)
Thank you