

Information from the KCDB Office

Susanne Picard

KCDB Office – International Liaison and Communication Department

Bureau
| **I**nternational des
| **P**oids et
| **M**esures



CCM May 2021

KCDB 2.0

- Implemented in October 2019
- 3 help documents, 4 PPT presentations, 11 video clips and FAQs available at <https://www.bipm.org/en/cipm-mra/kcdb-help>
- **Capacity Building and Knowledge Transfer** sessions given to RMOs, Writers, TC Chairs...
- Presently larger reviews being carried out for **CCQM** (400 CMCs) and **EM** EURAMET (200 CMCs)

KCDB 2.0 : CMC status

- 2888 CMCs in **M** (2021-04-08)
- Some 500 CMCs drafted, reviewed and approved on the KCDB platform
- ... of which 70 CMCs in **M**
- Revision of CMCs in Mass as a follow up of the new definition of the kg
- Additional revision expected in 2021

KCDB 2.0 : CMC Uncertainty expressions for CMCs

- Numerical constant
- Numerical range
- Uncertainty equation
- Uncertainty table

KCDB 2.0 : CMC Uncertainty equations

- Quantity based equations (2018)
- **300 equations for M subject for revision**



How to I write a quantity-based equation requested for the KCDB ?

https://www.bipm.org/utils/common/pdf/KCDB_2.0/Conversion-of-equations-KCDB.pdf

Example: $Q [22 , 0.66 m]$, U in μg , m in kg

Becomes: $Q[22 \mu\text{g} , 6.6\text{E-}10 m]$

KCDB 2.0 : Comparisons

- **Pilot register and updates comparison information on the platform**

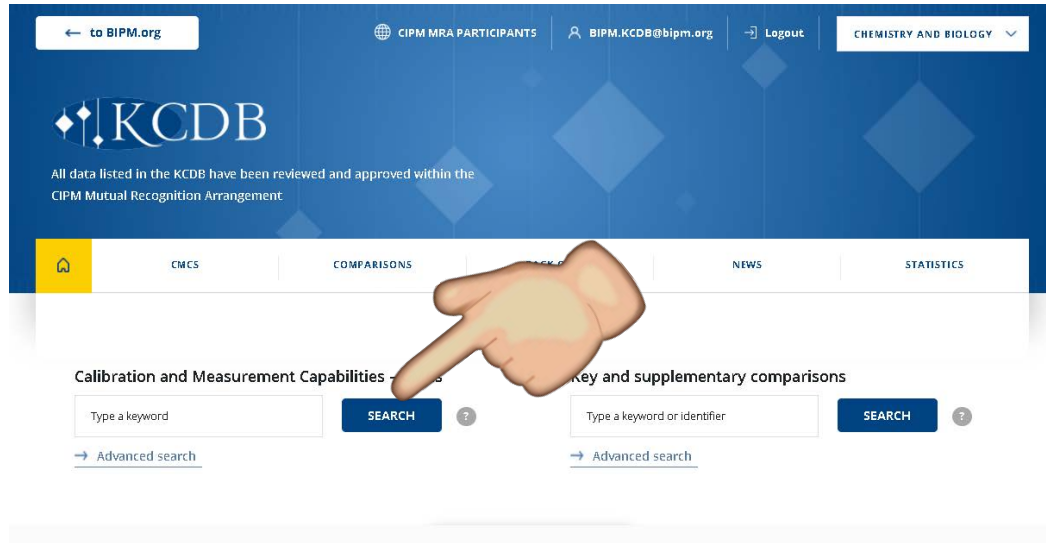
- Final report submitted via e-mail to appropriate group
- CC Executive Secretary (or WG Chair) informs KCDB Office on approval

- **Pilot uploads requested documents on the platform for publication**



(as before)

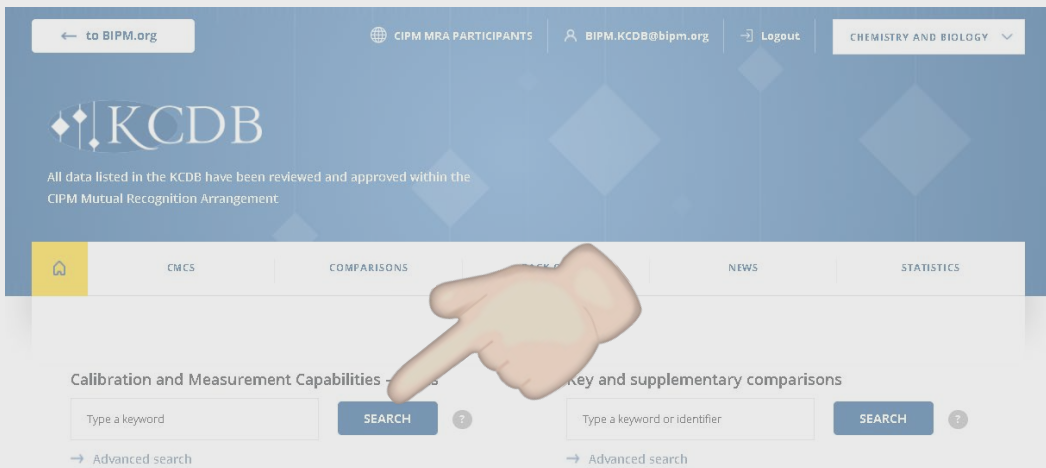
KCDB 2.0 Extract data



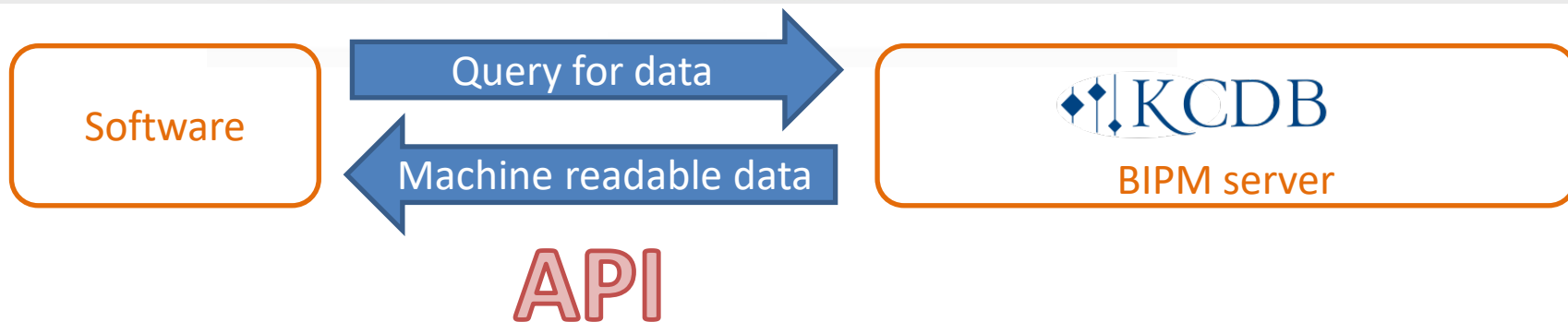
The screenshot shows the KCDB 2.0 website interface. At the top, there is a navigation bar with links for "to BIPM.org", "CIPM MRA PARTICIPANTS", "BIPM.KCDB@bipm.org", "Logout", and a dropdown menu for "CHEMISTRY AND BIOLOGY". Below the navigation bar is the KCDB logo and a statement: "All data listed in the KCDB have been reviewed and approved within the CIPM Mutual Recognition Arrangement". A horizontal menu contains several categories: "CMCS", "COMPARISONS", "KEY AND SUPPLEMENTARY COMPARISONS", "NEWS", and "STATISTICS". A hand icon is pointing to the "COMPARISONS" category. Below the menu, there are two search sections. The first section is titled "Calibration and Measurement Capabilities" and has a search input field with the placeholder "Type a keyword" and a "SEARCH" button. The second section is titled "Key and supplementary comparisons" and has a search input field with the placeholder "Type a keyword or identifier" and a "SEARCH" button. Both search sections have a link for "Advanced search" below them.

Search
"manually" ...

API KCDB – Application Programming Interface

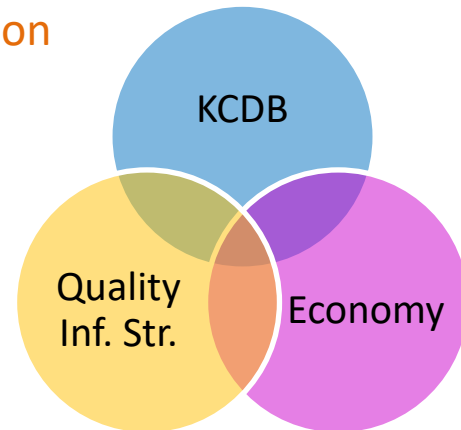


... use an API.



Why an API ?

- The API can be integrated into any website to include queries on the KCDB for example in web sites in languages other than English
- Gives possibility for extended statistics
- May one day provide the basis for digital calibration certificates
- Allows a « Big Data » approach



API KCDB Status

- Early stage beta testing by Peter Blattner and Federico Grasso (METAS)
and later by PTB, VNIIM, CENAM and NRC
- Presently exchange with members of the PTB
- Some adjustments presently being made, made available spring 2021

Potential consequences...

Harmonization of

- Units



- Quantity



			(HBW 1/1 to HBW 1/30)	M
			(HBW 10/100 to HBW 10/3000)	M
			(HBW 2.5/15.625 to HBW 2.5/187.5)	M
<u>Gas flow</u>				
	<u>Gas flow speed</u>	<u>Absolute pressure, gas medium</u>	(HBW 5/62.5 to HBW 5/750)	M
	<u>Gas flowing quantity, volume</u>	<u>Absolute pressure: gas medium</u>	(HR 15N to HR 45N)	M
	<u>Gas flowrate</u>	<u>Absolute pressure: gas medium, vacuum</u>	(HR 15TW to HR 45TW)	M
	<u>Gas flowrate volume</u>	<u>Absolute pressure: oil medium</u>	(HV 0.01 to HV 0.2)	M
	<u>Gas volume flow</u>	<u>Absolute pressure: vacuum</u>	(HV 0.3 to HV 1)	M
			(HV 20 to HV 125)	M

Potential consequences...

Harmonization of

- Instrument



- Method



Hydrostatic weighing	[2]
Fundamental hydrostatic weighing	[1]

INSTRUMENT OR ARTIFACT ▲
Liquid density artifact
Liquids
Liquids
Liquids
Liquids
Liquids (viscosity up to 20 mPa s)

Thank you

Bureau
International des
Poids et
Mesures



www.bipm.org