CECIP European Weighing Industry

# CECIP Position on possible future revision of the International System of Units-SI

CECIP, the European Weighing industry association,

- represents 700 European manufacturers of weighing instruments from 15 countries with 50000 employees plus 4000 - 5000 micro companies with additional 10000 employees, with a turnover of more than 3 billion Euro, which is more than 50 % of the world trade volume for weighing instruments;

- is a liaison organization of the International Organization of Legal Metrology (OIML), and participates actively in several OIML Technical Committees and Subcommittees, amongst them TC9/SC1 “Non-automatic weighing instruments”, TC9/SC2 “Automatic weighing instruments” and TC9/SC3 “Weights”;

- appreciates the invitation of the General Conference on Weights and Measures (CGPM) to comment on the "Possible future revision of the International System of Units, the SI" as an important user community, based on Resolution 1 of the 24th CGPM in 2011.

CECIP wishes to provide some comments on the possible "New SI" for consideration by the CGPM.

While a revision of the SI may be desirable from the point of view of fundamental physics, CECIP does not see a need for a "new SI" at the moment from a practical point of view. On the contrary, CECIP is deeply concerned that a premature redefinition of the existing SI base units, especially that of the kilogram, could negatively affect practical mass measurements, at least at the high-precision level.

The practical system of mass metrology, based on the International Prototype Kilogram (IPK), is well established, worldwide accepted, and meets all demands of the user community of weighing instruments and mass standards. The current definition has up to now never suffered from any limitations due to a possible, never proven drift of the IPK. It has quite successfully guaranteed up to now, that - all over the world - high-precision mass standards and weights of accuracy classes E2, E1 and even better are calibrated and used in the global market without any problems.

Can the CGPM or the CIPM guarantee that this high level of worldwide confidence and agreement of calibrated mass standards be kept with a redefined kilogram? Is it guaranteed that calibration certificates issued in different Member States will remain consistent, as it is the case now? And is it guaranteed that a redefined kilogram will not "jump" by more than $4 \cdot 10^{-8}$ which is the smallest relative measurement uncertainty provided in calibration certificates issued by accredited mass laboratories at the moment?

CECIP is concerned that a very successful, broadly accepted, well-functioning, worldwide metrology system, as the current SI is, might be jeopardized by an overhasty, premature decision for a "new SI" that has neither a sound experimental basis nor practical benefits. Considering the extremely large importance of weighing instruments and mass standards used in trade and industry, and also in daily life, the possible practical consequences and negative implications of a premature or even wrong decision could be tremendous. Bearing in mind the risk that certain countries could even turn back to a national metrology policy, if the SI and the international metrology system make negative headlines, which might have political consequences.

CECIP • Comité Européen des Constructeurs d'Instruments de Pesage
Diamant Building, Bd A. Reyers 80, B-1030 Brussels
Phone +32 2 706 82 28 • Fax +32 2 706 82 10
info@cecip.eu • www.cecip.eu

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Finally, CECIP has reservations as to the proposed new definition relating the kilogram back indirectly to an "anonymous" fundamental constant "*h*" that is not very well known by the general public, even not by well-educated people. A "new SI" should be well-understandable and plausible for the general public in order to keep the currently high level of acceptance for an international system of units.

In summary, CECIP representing or being in close touch with an important users' community of the SI, considers the proposed "new SI" as not yet sufficiently thought-through and not yet acceptable from the practical point of view.
CECIP would, in the future, be supportive of a "new SI" in general, and a redefined kilogram in particular, in case it is absolutely ensured that the high level of worldwide consistency and acceptance of calibration certificates issued by national metrology institutes or accredited calibration laboratories be kept or improved, and if the SI units be redefined in a comprehensive, plausible manner.

As a relevant stakeholder, CECIP welcomes with the possibility to give comments on this very important item.
CECIP encourages the relevant authorities to keep the industry involved in any future discussions and developments on this issue.

Best regards,

Veronika Martens

Vincent van der Wel

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