56 CIML Addendum 15.3e

2021-09-30

Agenda Item 15.3:

Updates by other organisations in liaison

Agenda Item 15.3e:

Update from ICUMSA

32nd ICUMSA Session, first time as virtual meeting

The 32nd ICUMSA Session took place as a virtual meeting on June 14–16, 2021. The conference had originally been scheduled for June 2020 in Vienna, Austria. However, in spring 2020 the conference was postponed to 2021. Due to Covid-19, the conference and the meeting of the delegates could not take place, which is why the session was organized as a virtual meeting. In order to accommodate delegates online across time zones ranging from Australia to the west coast of Canada, each of the three days lasted five hours. In total, 70 delegates from 22 countries registered for the conference organized by Bartens in Berlin. The ICUMSA President, Martijn Leijdekkers, and the Secretary, Hanjo Puke, came to Berlin to jointly moderate the conference from a studio at Bartens' offices.

ICUMSA President Martijn Leijdekkers and Secretary Hanjo Puke moderating the ICUMSA Session from a studio in Berlin

During the conference, the President honored Maritta Jacobs, Jan Maarten de Bruijn, Roger Wood and Clive Shelton for their service at ICUMSA over many years.

Formerly working for Pfeifer & Langen, Maritta Jacobs was Referee for Subject Microbiological Methods from 2006 to 2018. Under her leadership, analytical methods for the detection and quantification of thermophilic acidophilic bacteria (TAB) and osmotolerant yeasts and moulds were published.

Jan Maarten de Bruijn first participated in an ICUMSA conference in 1998 and has been Associate Referee for several subjects over many years. In 2013, he became Referee for GS8 Beet Processing, a position he held until he retired in 2018.

Roger Wood first participated in the 1982 Session. He became Referee for S3 (later S2) Method Format, Collaborative Testing and Statistical Treatment of Data from 2014 to 2018 and Referee for S8 Sampling and Sample Preparation from 2014 to 2016; For several years he was Member of the Publication Committee.

Clive Shelton has been Treasurer of ICUMSA since 1990. He helped to stabilize the financial situation of ICUMSA over his 31 years on this post. Clive Shelton resigned at the end of the 32nd Session. From 1994 to 1998 he served ICUMSA also as Referee for Molasses.

The Executive Committee elected Karen Pardoe, formerly British Sugar and long-time Referee of GS2, as his successor.

Topics of the conference

In total, 15 reports from the Referees of the Subjects and General Subjects of ICUMSA were presented and vividly discussed by the delegates from five continents. Some main points discussed during the Session were:

- Replacement of lead acetate as clarification agent in the polarimetric determination of the sugar (sucrose) content. The Referee for GS1 Raw Sugar intends to study other clarification agents such as Carrez or Octapol. In Sugar Beet (GS6), the polarimetric determination method using lead acetate has been withdrawn. Aluminums sulfate is now the only clarification agent allowed for beet analysis.
  Furthermore, the NIR polarimetric analysis of sugar has become Official. For the time being, the lead acetate Method has also obtained the status of Official (Reference).
- The work on a new method for cane analysis has proceeded in GS5 (Cane). The Official Method GS5-1 was completely revised and rewritten according to the ICUMSA Methods Template.
  A new Method without the use of lead salts for the polarimetric determination of the sugar content in pressed cane juice was developed and Tentatively adopted. It applies polarimetry in the NIR wavelength range. Calculations are based on the Berding and Pollock method.
- In Cane Processing (GS7), a new method to determine the dextran content using antibodies has been accepted as "Tentative". The antibodies are produced in China.
- The four color methods are to be reviewed in respect to establish uniformity.
- Over the last three years, ICUMSA has introduced a new numbering Method system by eliminating the middle numbers of the old numbering system: Thus GS 1/2/3/9-1 became GS1-1. Until 2025, the middle numbers will be kept as subscripts while users familiarize to new numbering system. After 2025, only the shortened Method numbers will be used. The new system has the advantage that whenever the scope of the Method changes, there will be no change in the Method number.

The complete 2021 Recommendations are available on www.icumsa.org.

ICUMSA® 32nd Session of ICUMSA – Final Recommendations

During the 32nd ICUMSA (virtual) Session in June 2021 the following Recommendations were accepted.

General Subject 1: Raw Sugar (*Tim Thys*, The Netherlands)

1 A collaborative study should be conducted to evaluate the use of a modified filtration (20 µm pore filter) in Method GS1-24, Insoluble Solids in Raw Sugar by Depth-Type Filtration.
2 The modified Method $GS2_{/9}$-37, as proposed by the Brazilian National Committee (and to be found in Appendix 5a of GS1 Referee Report), should be included as a separate GS1 method with proposed title: GS 1-XX "Particle Size Distribution of Raw Sugar by Sieving (Rens Method). It should be assessed if the results of the collaborative study, already done by the Brazilian NC, are sufficient to give the method Tentative status.
3 Method GS1-20 should be renamed as "Particle size distribution and fine grain content of raw sugar by sieving".
4 It should be investigated if alternatives for lead acetate clarification (e. g. clarification using Carrez I & II, Octapol and Claripol) can be included in Method GS $1_{/2/3/9}$-1, Polarisation of Raw Sugar by Polarimetry.
It should be assessed if the results of the LGC SUPS proficiency test can be used to determine the precision of the alternative method(s).

General Subject 2: White Sugar (*Karen Pardoe*, UK)

1 ICUMSA 32nd Session to accept the update for method GS2-33 as drafted by the GS2 Referee as a replacement for $GS2_{/1/7/9}$-33 (2011) with respect to GS2.
2 GS2 Referee to remove GS1, GS7 and GS9 from the scope of $GS2_{/1/7/9}$-33.
3 GS2 Referee to finalise the format for the revised GS2-33 method so that it aligns to the ICUMSA method format and can be published.
4 GS2 Referee to define and agree a list of alternative methods to $GS2_{/1/7/9}$-33 to investigate, based on input from the ICUMSA 32nd session.
5 GS2 Referee to update $GS2_{/3/9}$-17 to include SUPS performance data and address the concerns raised by S2 and S7 referees.
6 GS2 Referee to work cooperatively with the other Subject Referees to revise, improve and re-write the methods for determination of polarimetric sucrose content.
7 GS2 Referee to include SUPS performance data in all relevant GS2 methods when they are re-written into the new method format.

General Subject 3: Speciality sugars (*Andreas G. Degenhardt*, Germany)

1 According to the updated format of the ICUMSA, a method without Carrez clarification should be written down and integrated in the ICUMSA Methods Book under the status "Tentative". The suggested title is:
ICUMSA Method GS3-__ (2021): 5-Hydroxymethylfurfural (HMF) in Sugar Syrups and Invert Sugar Syrups by an HPLC Method – Tentative
An international collaborative study with low, medium and high HMF contents should be carried out and evaluated until the next ICUMSA Session.
2 Analytical methods should be assessed for applicability towards the determination of colour intensities in burnt sugar syrups and caramel syrups. The referee should give an overview with an appraisement.

General Subject 4: Molasses (*José Godoy*, Brazil; presented by *Sebastiaan van Berchum*, The Netherlands)

1 In order to find an alternative for lead acetate clarification in Method $GS4_{/7}$-1, The Determination of Apparent Sucrose in Molasses by a Double Polarisation Method, a preparatory study should be conducted to compare the effect of using alternative clarifying agents (e. g. Carrez I & II, Octapol, Claripol) and/or NIR-polarimetry instead of lead acetate.
2 Based on the outcome of the preparatory study mentioned in Recommendation 1, the most promising alternative method should be evaluated further by conducting a collaborative study.

General Subject 5: Cane (*Camille Roussel*, France)

1 The revised Method GS5-1 as outlined in Appendix 1 to this Report shall be accepted continuing its Official Status for Cane and Bagasse.
2 The new press method as drafted in Appendix 2 to this Report shall be accepted as a Tentative Method for Cane.
3 Remove the Method GS5-28 from the Methods Book.

General Subject 6: Beet (*Dierk Martin*, Germany)

1 Method GS6-1 (1994) "The Determination of the Polarisation of Sugar Beet by the Macerator or Cold Aqueous Digestion Method using Lead Acetate as Clarifying Agent" shall be withdrawn.
2 Method GS6-5 (2007) – The Determination of α-Amino Nitrogen in sugar beet by the Copper Method ("Blue Number") and method GS6-7 (2007) – The Determination of Potassium and Sodium in Sugar Beet by Flame Photometry still contain the option to clarify using either lead acetate or aluminium sulphate. Both methods shall be rewritten with the restriction to aluminium sulphate only as clarification agent.

3 Developments of methods for the determination of further parameters which might be relevant for the description of sugar beet quality should be observed.

General Subject 7: Cane Processing (*Gillian Eggleston*, USA)

1 The method „Dextran in Cane Juices and Syrups by an Antibody Method" as outlined in Appendix A to this Report shall be accepted with the Status Tentative, based on successful single laboratory validation.
2 The method „Dextran in Cane Molasses and Raw Sugar by an Antibody Method" as outlined in Appendix A to this Report shall be accepted with the Status Tentative. It shall be submitted to an inter-laboratory collaborative test.
3 The method „Dextran in Cane Molasses and Raw Sugar by an Antibody Method" shall be studied/validated for applicability to sugar beet products.

General Subject 8: Beet Processing (*Florian Emerstorfer*, Austria)

1 Further improve, collaboratively test and validate GS8-19 (2009) "The determination of dextran in beet raw juice and thick juice by a modified alcohol haze method – Tentative".
2 Check experiences using the DASA and HPAEC methods for dextran analysis and determine whether it would make sense to develop and standardise either one or both of these methods.
3 Select, collaboratively test and validate a method for the determination of the dextran-hydrolysing activity of (commercial) dextranase products.

General Subject 9: Plantation and Mill White Sugar (*Vasudha Shirish Keskar*, India)

1 Recommendation was postponed. To be reconsidered after finalisation of Recommendation 2
2 A review of comparison of methods of colour analysis should be done by a group of concerned Referees and authorities of ICUMSA for establishing uniformity, including the study on use of sonication for de-aeration in four colour methods.

Subject 1: Articles of Association and By-Laws (*Martijn Leijdekkers*, The Netherlands)

1 It is recommended to further define the objects of ICUMSA as described in Clause 3 of the Articles of Association by drafting further guidelines regarding the scope of the ICUMSA Methods Book. After adoption by the Executive Committee, this scope should be published on the ICUMSA website.
2 Clauses 4.2 and 30.1 in the Articles of Association should be adjusted in order to mention that membership fees shall be due and payable on a biennial instead of an annual basis.

Subject 2: Method Format, Collaborative Testing and Statistical Treatment of Data (*Hanjo Puke*, Germany)

1 It is recommended to amend the definitions of ICUMSA Method Status (2008) as proposed in Appendix 1 to the present Report. The flowchart for Method Status Assignment shall remain unchanged.
2 It is recommended that the Referee of Subject 6, Microbiological Methods, shall observe the further development of ISO Standard 16140 " Microbiology of the food chain – Method validation" with the aim to derive corresponding rules for ICUMSA Microbiological Methods (Appendix 2)
3 It is recommended to reactivate contact to OIML, ISO, AOAC, Codex Alimentarius, IUPAC, EDQM etc. In 1986, there was a resolution to actively develop connections with other international organisations such as OIML, ISO, AOAC, Codex Alimentarius and IUPAC. Contact and exchange with OIML were not sufficient in recent years. OIML is today still using °S in Recommendation R14 [6], instead of °Z, introduced with the new International Sugar Scale in 1988 [7]. The extension of the wavelength range in polarimetry to near infrared (NIR) is not yet included. New contact representatives should be appointed.
4 It is recommended that ICUMSA shall contact the New York Board of Trade (NYBOT) concerning the wrong use of an outdated method for colour determination and referring it to ICUMSA. Contract 14, White Sugar Contract No. 11, ICE Futures U.S.®, Inc. SUGAR NO. 16 (Appendix 3).
5 It is recommended to publish the updated Rules and Responsibilities for ICUMSA Referees as outlined in Appendix 4 to the present Report on the ICUMSA Website.
6 It is recommended that Recommendations for "Further Studies" should indicate a plan of action.
7 It is recommended to assign Official status to Method GS1-2. Method GS1-2 was collaboratively tested in 2002, but its status is still Tentative. It must be decided, which one of Methods GS1-1 and GS1-2 shall be assigned Official (Reference) status.
The Commission agreed to give Reference Status to Method GS1-1 on a temporary basis as part of the transition phase to Methods without the use of lead acetate clarification. The final aim is to withdraw Methods using lead acetate clarification from the Methods Book.
8 It is recommended to include a disclaimer concerning the mentioning of commercial products or kits in ICUMSA Methods into the respective Methods and into the introductory part of the ICUMSA Methods Book (Appendix 5). It is recommended to replace the ICUMSA Method Templates (long and shortened) on the ICUMSA Website by two new (ninth) versions.
9 It is recommended to publish the updated list of Tentative Methods on the ICUMSA Website (Excel-Chart, Appendix 6).
10 It is recommended to publish the collection of ICUMSA Specifications as outlined in Appendix 7 on the ICUMSA Website. The draft in Appendix 7 needs further development. It is recommended to replace the ICUMSA Specifications for volumetric glassware by the corresponding ISO specifications.

Subject 3: Colour, Turbidity and Reflectance Measurement (*Christiane Lakenbrink*, Germany)

No Recommendations

Subject 4: Physical Methods (*Mathis Kuchejda*, Germany)
No Report; No Recommendations

Subject 5: Chemical Methods (Maciej Wojtczak, Poland)

1 The method GS4$_{/7/8/5}$-2 The Determination of Sucrose by Gas Chromatography in Molasses and Factory Products – Official; and Cane Juice – Tentative should be rewritten as GS4-2 Sucrose by Gas Chromatography in Molasses – Official. A separate method should be written for other factory products.
2 Further investigations of dextran analysis methods should be conducted in cooperation with GS8 and GS7 and results should be presented during the next session.
3 The Method GS2$_{/4/8}$-54, Non-ionic surfactants in white sugar, molasses, and dried beet pulp, should be modified to replace the chloroform and after modification collaborative tested in cooperation with GS2, GS4, and GS8.

Subject 6: Microbiological Methods (*Michael Klingeberg*, Germany)

1 Method GS2$_{/3}$-52 (2017) "The Determination of β-glucuronidase-positive Escherichia coli and β-galactosidase-positive coliform bacteria in Sugar and Sugar Products by the Membrane Filtration Method – Accepted" The modified method, transferred into the new ICUMSA-template and adapted concerning media, should be retained with the status "Accepted".
2 Method GS2$_{/3}$-53 (2017) "The Determination of Osmotolerant Yeasts and Xerophilic Moulds in Sugar Products by the Membrane Filtration Method or the Pour Plate Method – Accepted" The modified method, transferred into the new ICUMSA-template, extended by a second incubation temperature, 25 °C and 30 °C and extended by the media DG18M and De Whalley should be retained with the status "Accepted".
3 Method GS2$_{/3}$-47 (2015): "The Determination of Yeasts and Moulds in Refined Sugar Products by the Pour Plate Method or the Membrane Filter Method – Official" The method was transferred into the new ICUMSA-template. Further it was extended by the media YGC, wort nutrient pads and DG18M and extended by a second incubation temperature and incubation time, 25 °C and 30 °C for at least 5 to 7 days. The method status should be changed to "Accepted".
4 The terms (sugar, sugar products, dark syrup, refined sugar products) in the texts of all microbiological methods shall be defined as soon as possible in accordance with the definitions of ICUMSA in general.

Subject 7: Sampling, Sample Handling and Sample Preparation (*Alan N. Mead*, United Kingdom)

1 The recommended procedures for sampling of the various categories of material should be under General Subject heading(s) in a similar manner to those for the sampling for microbiological analyses.
2 On acceptance of Recommendation 1, the following new method should be included into the ICUMSA Methods Book: Method GS1$_{/2/3/9}$-XX (2021) Sampling, Sample Handling and Sample Preparation of all Free-Flowing Sugars for Analyses other than Microbiological.
3 Also on acceptance of Recommendation 1, the following new method should be included into the ICUMSA Methods Book: Method GS3$_{/4}$-XX (2021) Sampling, Sample Handling and Sample Preparation of Liquid Sugar Products, Syrups and Molasses for Analyses other than Microbiological.