A·I·S·E

International Association for Soaps,
Detergents and Maintenance Products

WORKSHOP ON THE CLASSIFICATION & LABELLING OF DETERGENTS AND CLEANING PRODUCTS UNDER THE CLP REGULATION

- PROCEEDINGS -

TUESDAY 18 OCTOBER 2016

EXECUTIVE SUMMARY

A.I.S.E. (the International Association for Soaps, Detergents and Maintenance Products), through its broad network across Europe and beyond, represents an industry sector delivering cleanliness and hygiene for millions of people. Detergent and cleaning products are used every day by consumers and professionals in homes, schools and other private and public places across Europe.

Consequently, safety of consumers and workers has always been a top priority for A.I.S.E. member companies. A.I.S.E. members are committed to provide the most appropriate and understandable hazard communication on the label, for a safe use of their products.

Following input from stakeholders' consultation carried out in 2009, A.I.S.E. developed **the Detergent Industry Network for CLP classification and labelling of detergents and cleaning products**, which is based on two pillars:

1. Applicability of validated *in vitro* methods to generate test data on detergent mixtures;
2. Development of the first Industry Classification Network "DetNet" to share data/expertise and avoid unnecessary testing, based on CLP[1] bridging principles and expert judgment.

Launched in December 2013, DetNet is fully operational and has been used by more than 180 companies and 200 experts. DetNet allowed the CLP classification of more than 1000 detergent and cleaning product mixtures avoiding unnecessary animal testing.

Objectives of the workshop

The purpose of the workshop was to inform participants about two of the industry voluntary initiatives, namely the "DetNet" network aimed at sharing data and expertise to facilitate the appropriate classification, and the A.I.S.E. *in vitro* program which aims to secure alternative test methods for detergents and cleaning products. These initiatives are part of the industry's proactive agenda for driving positive change ensuring the appropriate hazards classification and labelling, while avoiding unnecessary animal testing. The workshop also represented the opportunity to further exchange with participants in order to facilitate the harmonized application of CLP principles for the detergent and cleaning product industry across the EU.

Who attended this workshop?

About 110 participants covering a wide range of stakeholders including representatives from the EU institutions, Member States Competent Authorities and national Helpdesks, representatives from Poison Control Centers, animal welfare NGOs, academia and Industry partners attended this workshop (see the list of participants in Annex).

1. CLP Regulation (EC) No1272/2008

AGENDA OF THE WORKSHOP

Chairperson: Prof. Jim Bridges (University of Surrey)

09:00 - 09:45	Registration and welcome coffee
09:45 - 10.00	Opening Susanne Zänker, A.I.S.E.
10.00 - 11.15	A safe use of detergents and cleaning products: a broader view Reinhard Büscher, European Commission, DG GROW
	Detergents and cleaning product mixtures: the new challenges under CLP Gerard Luijkx, Unilever
	A.I.S.E. *In vitro* program : alternative test method to classify detergents for eye effects Pauline McNamee, P&G
	Questions & answers
11.15 - 11.45	Coffee break
11.45 - 13:00	Prospective study on the eye effects caused by detergents and cleaning products (MAGAM II) Maren Hermanns-Clausen, Poison Center Freiburg; Herbert Desel, BfR
	DetNet: the first industry network to share data and expertise on the CLP classification of detergents and cleaning products Caroline Bertein, A.I.S.E.
	"Bridging Principles" concept in the UN GHS : an expert view Paul Brigandi, UN GHS expert
	Questions & answers
13:00 - 14:00	Lunch
14:00 - 14:45	DetNet demonstrations – Practical case studies
14:45 - 16:30	Break-out discussion groups: Toward an enhanced harmonisation of the CLP Regulation, considering: • the use of non-animal testing, • the acceptance of the Weight of Evidence/ Expert Judgement, • "Bridging Principles" for classification purposes, • DetNet enhancements, • required qualifications for classification experts Moderators: Outi Tunnela, ECHA; Sylvain Bintein, European Commission, DG ENV; Roberto Scazzola, A.I.S.E.
	Debrief from break-out discussions All
16.30 - 16.45	Closing remarks and next steps Jim Bridges, University of Surrey
16:45 - 17:30	Cocktail

WORKSHOP PROCEEDINGS

Introductions to the workshop

In her opening remarks, Susanne Zänker, Director-General of A.I.S.E. welcomed participants to a workshop among experts on the subject of classification and labelling of mixtures for detergents and cleaning products. She reminded that European Union is the first jurisdiction across the world applying horizontally the GHS criteria for consumer goods. Therefore, the sector was confronted with practical challenges in the interpretation and implementation of scientific and regulatory criteria, such as the bridging principles. She encouraged an open dialogue between authorities, industry and academia towards an enhanced harmonization of CLP criteria across Europe.

Programme of the workshop

The format of the day was a series of presentations given by experts, followed by live DetNet demonstrations and break-out discussions on practical aspects for the classification and labelling of detergents and cleaning products as well as a summing up by the Moderator.

These proceedings give a summary of each of the presentations, the report back from break-out discussions and the summing up. The presentations and video recordings are available on the A.I.S.E. website (go to "Events"): www.aise.eu

The Moderator for the day was Jim Bridges, Emeritus Professor of Toxicology and Environmental Health at Surrey University, UK and advisor to the EU on Risk Assessment Procedures.

Presentations of the workshop

Reinhard Büscher (European Commission - DG GROW)

A safe use of detergents and cleaning products – a broader view

Mr Reinhard Büscher introduced the concept of "Safe use" which may have many different meanings, from addressing general health risks and specific risks for children to better environmental protection.

As a first step, he explained that promoting safe use is only possible when the hazards and risks of product are known. The correct classification of both substances and mixtures is essential to determine the requirements for labelling and packaging, as well as many other downstream risk management measures.

Then, Mr Büscher pointed out that the implementation of the CLP Regulation, which became mandatory for mixtures in 2015, has led to some changes in the mixture classification rules compared to the old system. He acknowledged that different interpretation by national authorities of certain complex aspects of classification such as bridging principles could indeed create confusion for industry as well as legal uncertainty and maybe even unequal competition in some cases. Therefore, he reminded that it was crucial that all actors involved (the Commission, ECHA, Competent Authorities, enforcement authorities, industry associations, and of course the duty holders themselves) to have a common understanding of these rules. One way to achieve harmonised approach and interpretation is through discussion at HelpNet, ECHA's network of national helpdesks.

In the context of mixture classification and the use of bridging principles, Mr Büscher mentioned that the Commission welcomes and encourages initiatives such as DetNet launched by A.I.S.E. According to him, DetNet constitutes a practical and sensible collective industry approach to classify and label cleaning products according to the rules. The Commission values such collaborative efforts and invited industry to maintain an open dialogue with the legislator and feedback on issues and practical examples of elements to be improved.

Besides the hazard communication, a second aspect to safe use is communication. Once the hazards have been identified, these need to be effectively communicated to the users, both workers and consumers. In that regard, the Commission acknowledged that increasing consumers' understanding of product labels remains a challenge. As illustrated by the findings of the public survey conducted by A.I.S.E., the general public does not seem to find much help in the current CLP label information, including the pictograms. They are often considered difficult to interpret, especially with regard to the hazardousness of different products and the associated precautionary measures that are to be taken when using them. Mr Büscher reported that there is still much room for improvement, notably by better collaboration between the Commission, Member States and Industry in the field of safety communication for consumers.

Furthermore, he explained that safe use could also be extended to sustainable use. The Detergents Regulation had indeed introduced the concept of sustainability also for the detergents sector, e.g. by limiting the phosphate content in laundry detergents. As of the 1st of January 2017 the phosphate restriction will be extended to automatic dishwasher detergents, contributing further to this environmental protection goal.

He subsequently highlighted that micro-plastics are a new environmental challenge that calls for action as they are affecting the phenomenon of marine littering and are detrimental to marine biodiversity. The Commission will assess the most proportionate policy option and will come back to this issue next year when presenting its Plastic Strategy, which is part of the Circular Economy Package.

Then, Mr Büscher identified another recent sustainability challenge with the liquid laundry capsules. While they may reduce the environmental footprint, due to the reduced volume and weight to be transported as well as by reducing the dosage per wash, the question was raised about the impact of such products on water quality and the environment. In addition, he mentioned that the higher chemical concentration of the liquid laundry capsules and their potential visual attractiveness pose another risk for human health. New safety measures were introduced as a response by Regulation EC No 1297/2014, which is applicable as from June 2015. Based on feedback from the Poison Centres it was expected to get a clearer picture on the success of these measures by the end of the year. Plans for awareness raising actions could also play an important role on how consumers handle these products. Before considering any new measures, the impact of the recently adopted measures as well as an ex-ante impact assessment on possible new measures should be carefully considered.

Finally, Mr Büscher concluded by highlighting a key action by the Commission to address some of these challenges: the fitness check on chemicals legislation, to which A.I.S.E. and its members provided their input to the public consultation and the targeted consultations. The fitness check will be fully concluded in early 2018, yet DG GROW's key supporting study will already be finalised by the end of this year. It contains a multitude of case studies, of which two are of particular relevance for the detergents sector: the case study on legal coherence in the requirements for detergents and the case study on consumer comprehension of labels. These case studies have not only identified concrete legal issues, but have also raised broader questions on how to ensure effective consumer communication through CLP. These are some of the questions that the Commission will certainly be looking into in more detail in the future.

Gerard Luijkx (Unilever)

The detergent industry's challenges under CLP

Gerard Luijkx emphasized the industry's main objective that its products be used safely and in a sustainable manner. Key to achieving this goal is a scientifically sound, robust, consistent and transparent process leading to appropriate classification & labelling of household detergent and cleaning products. Existing data and in-market information on product formulations are to be optimally used allowing for classifications that reflect the products' inherent hazardous properties and match the consumers' experience of the products.

Classification for eye irritation/corrosion by calculation

DPD versus CLP

Calculation of mixture classification based on content of an Eye cat 1 ingredient

DPD Classification threshold, Symbol, ***indication of danger,*** Risk phrase	Concentration %	**CLP Classification threshold,** Pictogram, **SIGNAL WORD,** Category, Hazard statements
≥ 10 %, *„Irritant"* „Risk of serious damage to eyes"	10 –100	≥ 3 % **DANGER,** Eye Cat. 1 „Causes serious eye damage"
≥ 5 to < 10 %, *„Irritant"* „Irritating to eyes"	5 – 10	
0 to < 5 %: no labelling	3 – 5	
	1 – 3	≥ 1 to < 3 % **WARNING,** Eye Cat. 2 „Causes serious eye irritation"
	0 – 1	0 to < 1 %: no labelling

The introduction of the CLP Regulation causes a number of challenges for the detergent industry – not only for the endpoints of skin and eye irritation which are the focus of the workshop, but also other endpoints such as the chronic environmental classification for readily biodegradable substances, the new skin sensitization sub-category 1A or corrosion to metals. Specifically with regard to the irritation/corrosion endpoints, the rule changes have significant impacts on surfactant-containing products if the additivity method is applied. Compared to the former Dangerous Preparations Directive (DPD), the application of the additivity principles of CLP often results in a more severe classification for eye and skin hazards. In neat form, surfactants are mainly classified as serious eye damage (category 1), already triggering eye irritation (category 2) classification & labelling if present in detergent products at concentrations between 1-3%. The 'Danger' statement along with the corrosive pictogramme is triggered if surfactants classified as Eye Cat. 1 are present in detergent products at concentrations equal to or greater than 3%. For comparison, the cut-offs under the DPD were 5-10% for eye irritation and equal to/greater than 10% for irreversible effects respectively. The CLP additivity rules also have impacts for detergent and cleaning products containing skin corrosive ingredients.

Very different hazard profile same pictogram?

Mr Luijkx pointed out that when applying the additivity method, the majority of daily-use detergents would be classified as Eye Cat. 1 and therefore carry the same corrosive pictogramme on the label as caustic or highly acidic specialty cleaners. A case in point is the comparison of the CLP classification of a dishwashing liquid and a drain cleaner. Using the CLP additivity method, both products would be classified and labelled with the corrosive pictogramme – for different reasons. The classification of the dishwashing liquid is for eye irritation, largely driven by its surfactant content. Dishwashing liquids are used daily and stored by the sink and normally have no or negligible effects when in contact with skin, diluted or neat. Due to its caustic or acidic nature, the drain cleaner is however classified as skin corrosive. The consumer generally understands the dangerous properties of a drain cleaner and therefore uses and stores such products with caution and great care. Nevertheless, the same pictogramme on the label, the most prominent hazard communication vehicle to the consumer, suggests that both types of products have the same hazard and should therefore be used and stored in the same cautious manner. Is this the right message to convey to the consumer for a dishwashing liquid, a product of daily use? Mr Luijkx was concerned that the strict application of the CLP additivity rules would lead, in the future, to an inflation of severe classifications of such daily use detergents. As a result, the consumer would no longer be able to distinguish dangerous from non-dangerous products.

The good news is, however, that the CLP Regulation offers a way out of this dilemma. It establishes a clear hierarchy of information use and makes the case for using data rather than applying the additivity rules. Classification of mixtures can be based on newly generated *in vitro* or existing data on the mixture itself, or be based on available data on similar tested mixtures by applying the bridging principles. Applying the additivity rules should only occur as a last resort.

Pauline McNamee (P&G)

A.I.S.E. *In vitro* program – alternative test methods to classify detergents for eye effects

Pauline McNamee introduced the topic by providing an overview of the current status of validation and regulatory acceptance of eye irritation *in vitro* test methods explaining that, whilst there are currently *in vitro* test methods to classify chemicals as serious eye damage (Category 1) and as Non-Classified, there is no *in vitro* test method to classify directly as eye irritant (Category 2).

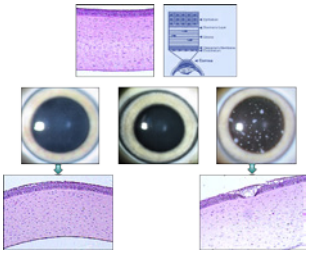
She reported that in 2010 A.I.S.E. launched, an *in vitro* testing program for skin and eye corrosion/irritation, as part of the strategy for the Classification & Labelling of detergent and cleaning products under CLP. This program aimed at investigating the use of available validated *in vitro* test methods to classify detergent and cleaning products for these two endpoints. Pauline McNamee then went on to describe in more detail the *in vitro* testing program as it relates to eye effects. The main objective was ultimately to generate *in vitro* data which correctly reflect the hazard potential to man, including identification of potential serious eye damage effects (namely a classification as eye Category 1).

In a first phase of this program, literature and existing data (both *in vivo* and *in vitro*) were reviewed, and *in vitro* testing of representative formulations according to various test methods was subsequently conducted. Both non-extreme pH and extreme pH detergent and cleaning products were incorporated into the program. This first phase was completed by the end of 2012. As a following step, A.I.S.E. investigated the usefulness of histopathology as an additional endpoint to the existing regulatory accepted Isolated Chicken Eye (ICE) *in vitro* test method (OECD Test Guideline 438) to identify non-extreme pH detergent and cleaning products requiring classification as serious eye damage (Category 1). Following development of a semi-qualitative scoring scale, atlas of histopathology effects and prediction model, histopathology as an additional endpoint to the validated ICE prediction model was shown to be suitable to correctly identify surfactants and non-extreme pH surfactant-containing mixtures that require a classification as serious eye damage (Category 1) based on persistence of effects *in vivo*. In particular, epithelial vacuolation (in the mid and/or low layers) and epithelial erosion (at least moderate level) were found to be the most typical histopathological effects induced by the non-extreme pH detergent and cleaning products classified as UN GHS Category 1 *in vivo* (Cazelle et al., 2014). Use of histopathology as an additional endpoint to the ICE test method did not appear to be useful for extreme pH detergent and cleaning products because the classification of such products is based mainly on severity of effects and in this case ICE test method alone is sufficient.

In conclusion, Pauline McNamee specified that the Netherlands, with the support of A.I.S.E. proposed to the OECD in 2014 a revision of Test Guideline 438 on the Isolated Chicken Eye (ICE) to include histopathology as an additional endpoint to better predict non-extreme pH detergent and cleaning products that require EU CLP/ UN GHS eye Category 1 classification. This project was accepted onto the OECD Work Program in April 2015. A first revised draft of OECD Test Guideline 438 on the ICE test method to include histopathology was already discussed by OECD experts at the end of 2015. Finally, work is currently ongoing to evaluate the reproducibility of the histopathology endpoint relevant to the ICE test method.

Conclusions

- Histopathology: useful additional endpoint to the validated ICE test method prediction model
  - *Non-extreme pH detergent and cleaning products, surfactants and surfactant dilutions*



- Allows a better prediction of EU CLP / UN GHS Cat. 1
  - *Identifies Cat. 1 classified in vivo based on persistence of effects and avoids misclassification of Cat. 1 classified in vivo based on severity of effects*
- Proposed use: to change from “no prediction can be made“ into EU CLP / UN GHS Cat. 1 (“up-classification“ only)
- Does not appear useful for pH-extreme products as classification is based mainly on severity of effects
- Between laboratory reproducibility study is ongoing

Maren Hermanns-Clausen (Poison Center Freiburg) and **Herbert Desel** (BfR[2])

Prospective study on the eye effects caused by detergents and cleaning products – MAGAM II

Maren Hermanns-Clausen and Herbert Desel reported on the outcome of the prospective observation multicentre Poison Centre study on the potential eye effects caused by detergents and cleaning products. Poison Control Centres (PCCs) from Germany and Austria ('MAGAM II DE/AT') as well as Denmark, Italy, Slovakia and the Czech Republic ('MAGAM II DISC') - representing in total approximately one third of the EU population - participated in this study.

The main objective of the MAGAM II study was to identify the severity of the eye effects caused by consumer exposure to these household and professional products. For this purpose, all human eye exposures to detergents or maintenance products reported to the PCCs taking calls from public and professionals seeking medical advice were included. The data collection for the MAGAM II DE/AT took place from February 2013 to July 2014 and that for MAGAM II DISC from June 2013 until February 2015. Follow-up was performed in all cases by a structured telephone interview. In cases involving medical treatment, written medical reports were requested and collected. The severity of eye effects was rated according to the Poisoning Severity Score[3]. Healing was defined as complete recovery from ocular symptoms within 21 days following exposure.

In MAGAM II DE/AT, a total of 586 cases were included of which about 528 of the cases could be completed by follow-up. Of those, 96% of the reported incidents were of accidental nature predominantly involving children. The Median age of exposed individuals was determined to be 4 years. About 200 (38%) of the exposed individuals consulted a physician (mainly an ophthalmologist), of which 55 medical reports confirmed the severity of the response. According to the Poison Severity Score (PSS), the severity of the injury was considered asymptotic in 47 cases, mild in 448 cases or moderate (e.g., blepharospasm) in 33 cases. No severe symptoms were recorded or reported. Symptoms most frequently reported were redness, burning and lachrymation. In terms of treatment, irrigation was performed in most cases (94%). Healing was reported in all cases. The duration of eye symptoms was less than 12 hours for 340 cases, 12-24 hours for 62 cases, 1 – 6 days for 67 cases and 7 – 21 days for 13 cases.

The MAGAM II DISC study revealed very similar findings to the study conducted in Germany and Austria. Of 598 successful follow-up cases, the severity of injury was asymptotic in 7%, minor in 81%, moderate in 12% and severe in 0.3% (i.e., 2/598) of the cases. In the 2 severe cases, symptoms such as reported hypersensitivity or reduced vision were still present after 21 days. The most frequently reported symptoms were signs of eye irritation indicated as redness, burning sensation and lachrymation. Eye irrigation was performed in 95% of all cases.

Taking all of this into account, Maren Hermanns-Clausen and Herbert Desel concluded that the large majority of accidental or professional eye exposures to detergents and cleaning products caused minor or no symptoms. Healing was reported in hours or days for almost all cases. Severe eye effects indicated by non-reversible symptoms such as reported hypersensitivity or reduced vision were only found in the MAGAM II DISC study in a comparatively low number (i.e., 0.3% in MAGAM II DISC). This finding suggests that serious eye damage may occur after exposure to detergents or cleaning agents, but only rarely.

QUESTION & ANSWERS FOLLOWING THE PRESENTATION

Asked for the actual hazard classifications of the detergent and cleaning products with which the accidental eye exposures occurred, Ms. Hermanns-Clausen and Mr. Desel responded that this was only known for about 50% of the cases. Of these, only a small percentage of corrosive products - including 4 drain cleaners and a number of professional cleaning products - were involved. In this context it is of note that, during the study period, the detergent and cleaning products were classified and labelled according to DPD, not CLP criteria.

Asked if consumers would actually call a Poison Control Centre in case of severe effects, Ms. Hermanns-Clausen and Mr. Desel clarified that PCC's are not only called by consumers, but also by physicians or hospitals to which consumers with such eye exposures were admitted.

Asked why severe eye effects that may be expected on the basis of the animal data of some of the products were not observed and whether the MAGAM data may provide a basis for the classification of detergent and cleaning products for eye irritation/corrosion, Ms. Hermanns-Clausen and Mr. Desel responded that the MAGAM data provides a view on the potential consumer risks with regard to eye exposure, not the inherent hazard of the formulations. Ms. Hermanns-Clausen further pointed out the difficulties in understanding exposures in such accidental exposure situations with regard to type of exposure (splash or rubbing into eyes), exposure duration, volumes and the use of mitigating effects.

2. Bundesinstitut für Risikobewertung
3. Persson, H.E., et al. (1998). Poisoning Severity Score. Grading of acute poisoning. J Toxicol Clin Toxicol 36, 205-13.

Caroline Bertein (A.I.S.E.)

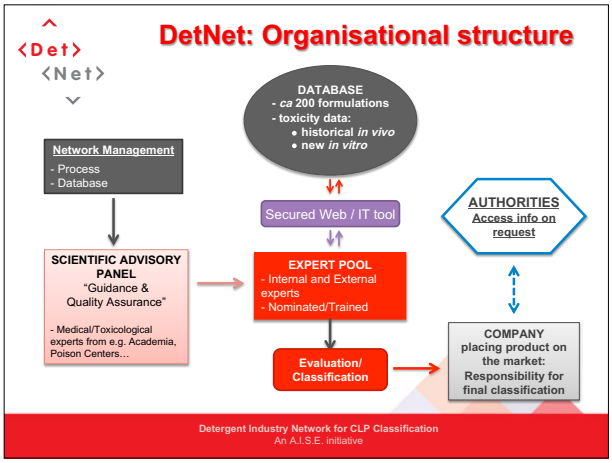
DetNet: The first industry network to share data and expertise on the CLP classification of detergents and cleaning products

Caroline Bertein introduced the topic by explaining that even before the CLP Regulation was adopted, A.I.S.E. members had started to collectively explore adequate options available under this new regulation to realistically classify detergent mixtures with the view to secure the safe use by consumers. This resulted in the setting of two pillars: i) the A.I.S.E. *in vitro* program in order to assess the applicability of *in vitro* methods to generate reliable test data on detergent mixtures for their classification, and ii) an Industry Classification Network "DetNet" to share data and expertise, so that not every mixture needs to be individually tested.

DetNet builds on the CLP provisions (Annex I, paragraph 1.1.0) allowing for data and expertise sharing among industry operators. It is a database that includes currently around 200 Tested Mixtures and covers five product categories, namely laundry detergents (both powders and liquids), hand dishwashing liquids, non-extreme pH all-purpose cleaners and alkaline bleaches. These tested mixtures have corresponding toxicological data, relevant for skin and/ or eye endpoints , either skin human test data (HPT - Human Patch Test) and/or historic eye test data (LVET - Low Volume Eye Test or Draize), as well as *in vitro* data (EpiSkin OECD TG439, Isolated Chicken Eye OECD 438 + histopathology...).

The aim is to contribute to establish the appropriate classification and consistent interpretation for expert judgement for skin and/or eye effects under CLP. For this, DetNet relies on the bridging principles. In practice, when an expert enters the composition of an untested mixture to classify, the IT-tool will search the database of Tested Mixtures and present a number of possible matching formulations (with no ranking of 'closeness') which the expert then evaluates manually to see whether any of the CLP bridging principles can be applied. DetNet is not intended to propose a classification per se, it is only intended to support the classification process by an expert thanks to a compilation of test data: the expert has to derive the classification manually, by comparing the formulation to be classified with the reference formulations of the tested mixtures identified by the tool and decide whether and how the bridging principles can be applied. The actual classification is therefore derived from the expert's own judgment.

Regarding the organizational structure, the classification experts who are nominated by DetNet users' companies have to meet the DetNet eligibility criteria and to follow a specific training. All nominations are reviewed and assessed individually against these defined eligibility criteria. Caroline Bertein also highlighted the role of the DetNet Scientific Advisory Panel (SAP), comprised of recognised independent experts in the fields of toxicology, dermatology or ophthalmology: the SAP has been providing advice to A.I.S.E. on the scientific approach, toxicological assessment, clinical experience and generation of reliable data for classification purposes.

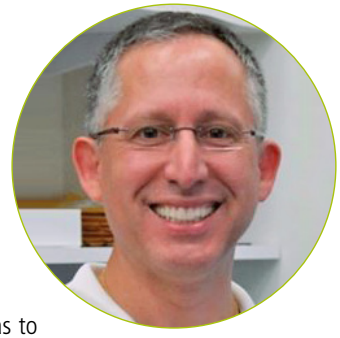


Any decision made by a classification expert to derive the classification of a mixture is recorded in a Classification Record delivered by DetNet at the end of the process, following a standard format. A DetNet Classification Record contains the compositional details of both the untested and the tested mixtures, as well as reference to the bridging principle used if any, along with the scientific/ toxicological rationale for the classification decision. DetNet users can share this Classification Record with enforcement authorities in case of inspections. After reviewing this available information, authorities may decide to contact the A.I.S.E. DetNet manager to request more detailed information on the Tested Mixture(s) used.

In conclusion, since it was launched in December 2013, more than 200 experts from 150 companies have been trained to correctly access and use the DetNet system. The threshold of 1,000 detergent mixtures classified using data from DetNet was reached early 2016, showing a steady interest from companies in this joint initiative.

Paul Brigandi (Consultant)

Bridging principle concept in the UN GHS: an expert view



As a former member of the OECD Expert Group which developed the GHS mixtures classification criteria, Mr. Brigandi discussed the goals and the evolution of the of the bridging principles in the context of the UN GHS system.

Mr Brigandi first explained that when the discussions related to GHS started, the overarching principle was to develop GHS on the basis of existing regulatory systems, particularly those from the US, Canada, EU and transport regulations. Mr. Brigandi pointed out that it was not the intention to create new processes or types of criteria. Specifically with regard to the bridging principles, the US EPA pesticides, Canadian WHMS and the EU dangerous preparation directive already considered the concept and provided some guidance on varying the concentration of existing ingredients within a mixture so that mixture data could be applied to a mixture of slightly different composition. To reduce animal testing and registration costs, the US EPA pesticides regulation introduced the dilution, concentration and interpolation bridging principles. Given the variations in the understanding and application of the bridging principles in different regulatory frameworks, it became clear in the course of the GHS discussions that there is a need to establish criteria-based bridging principles to ensure that they are consistently applied across different users and to satisfy the regulator's concerns to control the scope of this kind of read-across and not only use expert judgement.

The goal of the GHS bridging principles is to provide a mechanism to extrapolate data in order to determine the hazard classification of a mixture that has not yet been tested. It allows for a broader use of available data on tested mixtures to complete a hazard classification while also allowing understanding and incorporating synergistic and antagonistic effects. Bridging principles ensure that the classification process uses available data to the greatest extent possible in characterising the mixture without additional animal testing. In current regulations, for example the EU CLP Regulation, bridging principles are defined in an overarching chapter whereas in UN GHS reference is made to the BP that can be used for a given hazard class.

Early on, people applied the bridging principles when they didn't have a similar tested mixture so they used the information they had on the ingredients and their expert judgment to classify a mixture that had not been tested. This was not what was intended! While some level of expert judgement is required as to what is considered 'sufficient data', information is needed on the ingredients and a tested mixture(s) in order to use the bridging principles. The GHS guidance page of the UNECE GHS website provides GHS sub-committee approved examples of the key concepts and how to correctly apply the bridging principles for mixture classification[4]. Lastly, Paul Brigandi reinforced that the bridging principles can also be applied to support the non-classification of a mixture if all critical criteria are met. Likewise, the term "ingredient" while not defined in the GHS can be a substance or a mixture. This is illustrated in several of these approved examples.

4. https://www.unece.org/trans/danger/publi/ghs/guidance.html

Workshop break-out discussions

After live DetNet demonstrations based on practical case studies, the answers to a series of questions relating to practical aspects for the classification and labelling of detergents and cleaning products were discussed in break-out groups.

Question 1**: Non-animal/alternative test acceptance - Animal testing for the purposes of classification should be carried out as a last resort only (Art. 7.1. CLP). In this sense, in vitro testing can provide relevant information and can avoid unnecessary animal testing.* ***Do you use and do you accept information obtained via non-animal testing in the CLP classification process? How can the use and the acceptance of non-animal/alternative tests under CLP be improved?

› On this question, the overarching view is that non-animal testing methods should be considered in the CLP classification process. There was unanimous agreement that OECD Test Guidelines (TG) represent the golden standard and results from OECD TG are acceptable for classification purposes. Industry representatives suggested that in case a non-animal test method has not (yet) passed the OECD/ECVAM validation, its results should still be considered as part of the Weight of Evidence evaluation for the purpose of classifying the mixture under CLP, as long as the test methods are scientifically robust and mixtures tested within the test method's applicability domain. Representatives of public authorities stated that results from non-validated test methods are acceptable in case of findings that support a mixture's classification ('positive finding'), assuming the tests are scientifically justified and have been conducted under GLP. However, in case of negative findings, authorities pointed out that such a situation needs to be considered with caution and careful consideration. Authorities raised the concern that the supportability of Weight of Evidence and Expert Judgement evaluations is difficult to judge. Specifically with regard to the use of non-validated test methods, authorities encouraged industry to publish such test methods in peer reviewed scientific journals, gain method supporting statements from validation bodies such as ECVAM and to train inspectors and HelpNet experts on the non-animal tests in use. Identified actions for the inspectors are to more closely follow the work and ongoing discussions on strengths/limitations of non-animal test methods in the UN GHS *in vitro* working groups and for the Commission to more frequently update the test method regulation. Lastly, it was suggested that it would be very useful to develop, similarly to the bridging principles, case studies that demonstrate acceptable consideration of non-validated test methods in classification decisions.

Question 2**: Human data – New test on humans are prohibited for the purposes of CLP classification (Art.7.3. CLP). However, available epidemiological data on the effects on humans should be considered and shall be given priority over animal data in specific cases (Recital 28 CLP and CLP Annex I, 1.1.1.4.).* ***Do you have experience in the use of human data under CLP? Is there a need for further guidance on how human data could be used for CLP purposes?

› There was consensus that human data are relevant to protect human health. Hence, any information from PCC's is important, especially with regard to detecting new risks from the use of products in the market place. With regard to using human data for the classification/de-classification of products under CLP, more caution is warranted. Clearly, human data are acceptable to strengthen/worsen the classification of products relative to outcomes from *in vivo* or *in vitro* data. However, the requirements to accept the use of human data to justify classification in a lower hazard category or even to de-classify products are very high. Typically, human data are not statistically robust and, in non-clinically controlled settings, detailed exposure information is lacking thus preventing the matching of human data with those of animal studies which are the basis for the CLP classifications. While clinically controlled skin studies (e.g., human patch test, repeated patch test) do indeed define the exposure conditions and are therefore of high relevance, there is still a view that the protocols and evaluation criteria used don't match those required for skin effects by the CLP Regulation. Eye hazard data derived from PCC information represent accidental conditions and are hence not suitable for classification purposes, particularly not for justifying lower hazard classifications or de-classifications.

Question 3**: Weight of Evidence/Expert judgment – The CLP Regulation allows using Weight of Evidence and Expert Judgement to support a classification or non-classification of new mixtures. In case CLP criteria and Bridging Principles cannot be applied directly, Weight of Evidence determination using Expert Judgment on available data can be used for classification purposes.* ***How can the use of Weight of Evidence and Expert Judgment be properly justified and documented (e.g. should a matrix be used)?

› There was unanimous agreement that a more structured approach to the use Weight of Evidence (WoE) and Expert Judgement (EJ) is required. It is difficult for authorities to judge and enforce WoE and EJ in practice and it would have to be done on a case by case basis. The OECD IATA matrix may be a suitable template, but it should be approved at UN level for it suitability for GHS classification purposes.

For the EU, it would need to be officially recommended by the CLP Regulation and related guidance documentation. Further, a check-list could help to assess whether a WoE approach has been applied in scientifically sound and correct manner.

Question 4**: Industry network to facilitate CLP compliance – CLP encourages the use of the Industry Classification network to facilitate exchange of data and bring together expertise in the evaluation of information, test data, weight of evidence determinations and Bridging Principles (Recital 24 and Annex 1, 1.1.0 CLP). "DetNet" is the network established in 2013 by the Detergents Industry. **Does "DetNet" fulfil the purpose stated in CLP? How could it be further improved?

› All participants agreed that DetNet is an appropriate way to share information and to facilitate classification under CLP. To increase trust in the functioning of the system, representatives from authorities suggested random checks of the authorities of classifications made with DetNet. Authorities cautioned about the dependence of the DetNet system on the quality of the product and ingredient data entered into the system. Harmonized CLP classifications are not yet available for a high number of ingredients and hence there is a need for a solid and transparent quality control system to ensure the adequacy, reliability and reproducibility of the ingredient classifications within DetNet. In this context, industry was asked for more collaboration to agree on/ harmonize the entries in the C&L inventory. I t should be indicated whether an ingredient classification as presented in DetNet represents a harmonized classification or a self-classification. To increase transparency, it was recommended to include actual test results (robust study summaries) on the tested mixture into the CR report. It was further suggested to use the mixture data present in DetNet to verify the CLP bridging principles and to expand the current database by including additional product categories such as alkaline bleaches and extreme pH products.

Question 5**: Bridging Principles – If sufficient information is available on similar texted mixture(s), CLP allows to identify the hazards of a new untested mixture without performing new tests on it (so-called Bridging Principles Recital 23 and Art. 9(3) CLP). This also includes tested mixtures that are not classified according to CLP (see UN GHS and ECHA guidance examples). Do you consider a "not classified" tested mixture as available information that you can use under CLP Bridging Principles? **Do you see a reason to exclude "not classified as hazardous" as a result of a test for applying Bridging Principles?

› There was agreement that the bridging principles can also be applied to support the non-classification of a mixture. However, it was pointed out that the underlying process to do so must be transparent and the quality of the data suitable to support the non-classification. The kind of information required by inspectors is for example the DetNet classification report (CR) as a starting point, but it should be supplemented with robust study summaries (RSS) of the underlying *in vivo*/ *in vitro* test in support of non-classification.

Question 6**: Tested mixtures – The use of Bridging Principles for an untested mixture is based on the assumption that there are sufficient data on similar tested mixtures and individual hazardous ingredients. **Do the bridging rules support the use of data from an untested mixture to classify another untested mixture?

› There was unanimous agreement that this is not possible. The legal text specifies that a tested mixture has to be used as reference.

Question 7**: "Substantially similar mixtures" Bridging Principle – CLP criteria provides for assigning of the same hazard category to two or more mixtures differing only with regard to ingredients substantially equivalent in terms of hazard. However, the CLP regulation does not specify whether this applies to "simple" or "complex" mixtures (i.e. mixtures containing 2 ingredients or more). This Bridging Principle has been developed by UN GHS with multiple ingredient examples (Doc ST/SG/AC.10/C.4/2010/15). **Do you agree that the use of the "Substantially similar mixtures" Bridging Principle can be applied to mixtures constituted of more than 2 ingredients?

› There was general agreement that in reality mixtures are made of more than 2 ingredients and sometimes ingredients which are mixtures in their own right ('mixture in a mixture'). Amongst the participants there was a tendency to support the application of the bridging principles for mixtures with more than 2 components. However, it was also pointed that official regulatory perspective and guidance is needed to clarify how the bridging principles are to be applied for the classification of mixtures under the CLP Regulation. If ingredients are actually mixtures themselves, full information on each of the ingredients present is needed.

CONCLUSION

The moderator for the day, Jim Bridges, drew some conclusions from the workshop and suggested some priorities for further work. He defined the main challenge as a practical and transparent methodology which would be generally accepted by all authorities.

Key successful aspects of the process which were identified during the workshop were: the progress on Isolated Chicken Eye and histopathology at OECD level, the DetNet tool and its robust database of about 200 tested mixtures, the use of bridging principles…

However, there were also matters to be resolved: how to differentiate between a classification as serious eye damage (category 1) and eye irritant (category 2) and what test methods/ information are realistically and scientifically needed in order to make this differentiation; developing best practice in data extrapolation and bridging; further building on the scientific justification for the use of Weight of Evidence and Expert Judgement…

At the core of the framework lies the transparency to authorities, and therefore trust. Harmonisation in the implementation also remains essential.

Susanne Zänker, Director- General of A.I.S.E., concluded the day event by thanking all the participants for their active contributions, in particular during the break-out sessions.

ANNEX: ATTENDANCE LIST

NAME	ORGANISATION/COMPANY	Country
G.Abello	ASSOCASA	Italy
A.Amelkina	Health Board	Estonia
T. T.Andersen	EPA	Denmark
F. Angiulli	A.I.S.E.	
D. Basketter	DABMEB Consultancy Ltd – DetNet SAP Expert	England
C. Bertein	A.I.S.E.	
S. Bintein	EU Commission: DG ENV	
M-N. Blaude	WIV-ISP (Scientific Institute of Public Health)	Belgium
D. Bortolato	ReckittBenckiser	Italy
C.Bovenkerk	Inspectorate Human Environment and Transport	The Netherlands
R. Büscher	European Commission DG Grow	
N. Carole	National Environmental Protection Agency	Romania
L. Chochois	Institute of Science and Technology	Luxembourg
K. Claes	Helpdesk CLP	Belgium
P. Clohessy	Procter & Gamble	Belgium
R. Colleoni	ReckittBenckiser	
I. Coelho	AISDPCL	Portugal
O.Couturaud	DGCCRF	France
S. Darschnik	BAuA	Germany
H. Desel	BfR	Germany
I.Desvignes	Stanhome	France
P. Di Prospero Fanghella	Istituto Superiore Di Sanita	Italy
S. D'Ilio	Istituto Superiore di Sanità	Italy
K.Dimitrova	SealedAir	The Netherlands
K. Domański	Bureau for Chemical Substances	Poland
R. Doome	IMA-Europe	
G. Duffort	Helpdesk CLP	France
A.Dussart	SPF	Belgium
R.Edgar	Orkla Home & Personal Care	Norway
P.Elsner	University Hospital of Jena – DetNet SAP Expert	Germany
J. Falck	Chemicals Agency	Sweden
A.Fleischer	BAuA	Germany
B. Glassl	Industrieverband Köperpflege-und Waschmittel e.V.	Germany
R.Hanstveit	SealedAir	The Netherlands
S. Hajrlahovic Mehic	Chemicals Office	Slovenia
E. Harsanyi	National Public Health Center	Hungary
C. Henry	AFISE	France
M.Hermanns-Clausen	Vergiftungs-Informations-Zentrale Freiburg (VIZ)	Germany
T. Hitz	Henkel AG & CO. KGaA	Germany
M. Hofmann	Federal Office of Public Health., Switzerland	Switzerland
D.Holland	Procter & Gamble	Belgium
O.Holtkoetter	Henkel AG & Co KGaA	Germany
T. Humar Jurič	Chemicals Office	Slovenia
G. Hüttmann	ReckittBenckiser	Germany
A. Jamers	European Commission DG GROW	
A. Janonyte	Environmental Protection Agency	Lithuania
N. Jaunkalne	Environment, Geology and Meteorology Centre	Latvia
K. Jones	McBride Plc	United Kingdom
I. Joniskiene	Likochema	Lithuania
S.Karjomaa	Teknokemian Yhdistys r.y. - TY	Finland
A.Katrušáková	CENIA	Czech Republic
E. Kihlberg	Chemicals Agency	Sweden
B.Kleeb	Dalli Werke GmbH & Co. KG	Germany
A.Knietsch	Federal Institute for Occupational Safety and Health	Germany

NAME	ORGANISATION/COMPANY	Country
M.Kops	NVZ	The Netherlands
I. Laginha	CLP Helpdesk	Portugal
A.Laporte	Unilever	
A-K.Larsen	Environment Agency	Norway
E.Leibhold	Ecolab	Germany
D.Liptak	Rosmarin Zrt	Hungary
O.Linher	European Commission DG GROW	
G.Luijkx	Unilever	The Netherlands
M.Mäki	Safety and Chemicals Agency (Tukes)	Finland
M. Marinovic	Saponia d.d. Osijek	Croatia
S. McMickan	Health and Safety Authority	Ireland
P. McNamee	Procter & Gamble	England
A.Melvas	KTF	Sweden
A. Muller	RIVM	The Netherlands
I.Muranyi	Cosmetic and Home Care Association	Hungaria
C. Nakopoulou	General Chemical State Laboratory	Greece
N. Neubauer	IHO	Germany
M.Paleomylitou	Department of Labour Inspection	Cyprus
M.Paparella	Environment Agency	Austria
J. Pejcinovic	KOZMODET	Serbia
T.Petry	ToxMinds	
L.Pizzato	ReckittBenckiser	Italy
M.Porubiak	Ministry of Economy	Slovakia
M-J.Prinz	European Commission DG GROW	
T.Rahim	SCJohnson	England
A.Rasovic	Ministry of Agriculture and Environmental Protection	Serbia
G.Rehal	SPT	Denmark
M-R.Rella	Office of Environment	Liechtensein
R.Roggeband	Procter & Gamble	Belgium
K.Sallaerts	Ecolab bvba	Belgium
M-E Sanchez Diaz	CLP Helpdesk	Spain
R. Scazzola	A.I.S.E.	
A.Scheidgen	Henkel	German
P.B. Schmitt	Henkel AG & Co. KGaA	Belgium
B. Serrano Ramon	Cefic	
F.Sesana	PCC Milan	Italy
E.Skowron	ECHA	
I.Stulgiene	State Consumer Rights Protection Authority	Lithuania
K.Taylor	Cruelty Free International	England
M. Temsamani	A.I.S.E.	
O.Tunnela	ECHA	
J.Van Belle	Ministry of Health, Welfare and Sport	The Netherlands
K.Van der Jagt	European Commission DG ENV	
F.Van Raemdonck	European Commission DG ENV	
F.Van Tiggelen	DETIC	Belgium
M. van Velthoven	Unilever	The Netherlands
P. Verhelle	DETIC	Belgium
G. Verstegen	Belgian PCC – DetNet SAP Expert	Belgium
I.Z. Jezic Vidovic	Institute for toxicology and Antidoping	Croatia
C.Walsh	Health and Safety Authority	Ireland
S. Webb	Procter & Gamble	Belgium
J.Wolters	Dalli Werke GmbH & Co. KG	Germany
D. Zaika	Henkel AG & CO. KGaA	Germany
S. Zänker	A.I.S.E.	
E.Zidarova	Ministry of Environment and Water	Bulgaria

About A.I.S.E.

A.I.S.E. is the ***International Association for Soaps, Detergents and Maintenance Products***. Based in Brussels, A.I.S.E. has been the voice of the industry to EU regulators for **65 years**. Membership consists of **34 national associations across Europe**, 18 corporate members and six value chain partners. Through this extensive network, A.I.S.E. represents over **900 companies** supplying household and professional cleaning products and services across Europe.

A.I.S.E. has a long history in leading voluntary industry initiatives that focus on **sustainable design, manufacturing and consumption, product safety and safe use of products** by consumers and professional customers.

A.I.S.E. aisbl

Boulevard du Souverain 165
1160 Brussels • Belgium
+32 2 679 62 60
aise.main@aise.eu

www.aise.eu

BE 0538 183 615

A·I·S·E