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REPORT FROM THE COMMISSION
TO THE EUROPEAN PARLIAMENT AND THE COUNCIL ON COMMUNICATION
ON THE SAFE USE OF CHEMICALS

(Text with EEA relevance)

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Glossary

ECHA	European Chemicals Agency
CLP	Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures
GHS	Globally Harmonised System of Classification and Labelling of Chemicals
REACH	Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
RCN	Risk Communication Network
MSCA	Member States Competent Authority
SDS	Safety data Sheet

1. Introduction

The European Union has developed systems for providing information on hazardous properties and control measures of chemicals since 1967¹ for substances, and since 1988² for mixtures (earlier referred to as 'preparations'). Yet, the classification systems used in other countries were different and not always compatible with each other, which often required multiple labels and Safety Data Sheets for the same chemical product.

Therefore, the 1992 United Nations Conference on Environment and Development provided an international mandate to harmonise hazard classification by the year 2000. As a result, the first version of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS) was approved in 2002 and then published the following year. Since then, the GHS has been updated every two years. GHS is a United Nations system to identify the hazards of chemicals and to inform users about these hazards through standard symbols (pictograms) and phrases on the packaging labels and through safety data sheets (SDS).

¹ Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances, OJ 196, 16.8.1967, p. 1–98.

² Council Directive 88/379/EEC of 7 June 1988 on the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations, OJ L 187, 16.7.1988, p. 14–30.

CLP is the EU Regulation on Classification, Labelling and Packaging of chemicals substances and mixtures³. It aligns previous EU legislation on classification, labelling and packaging of chemicals to the GHS. The CLP Regulation aims to enhance the protection of human health and the environment, while ensuring free movement of chemical substances and mixtures, and enhancing competitiveness and innovation.

The CLP Regulation entered into force on 20 January 2009. According to the Regulation, the deadline for aligning substance classification to the new rules was 1 December 2010. For mixtures, the deadline will be 1 June 2015. The CLP Regulation will ultimately replace the previous rules on classification, labelling and packaging of substances (Directive 67/548/EEC) and current rules on preparations (Directive 1999/45/EC) after this transitional period.

Article 34 of the CLP Regulation lays down that:

1. *By 20 January 2012 the Agency shall carry out a study on the communication of information to the general public on the safe use of substances and mixtures and the potential need for additional information on labels. This study shall be carried out in consultation with competent authorities and stakeholders and drawing as appropriate on relevant best practice.*
2. *Without prejudice to the labelling rules provided for in this Title, the Commission shall, on the basis of the study referred to in paragraph 1, submit a report to the European Parliament and the Council and, if justified, present a legislative proposal to amend this Regulation.*

The European Chemicals Agency (ECHA) has assessed the findings of a Europe-wide Eurobarometer survey and of a further, more targeted study on risk perception. As a result, ECHA has published its study in accordance with Article 34 (1) CLP on 20 January 2012. This Report has been established on the basis of the study conducted by ECHA in accordance with Article 34 (2) CLP.

2. Study on the communication of information on chemicals to general public

The CLP Regulation incorporates the classification criteria and labelling rules agreed at UN level into EU legislation. The basic principles are actually rather close to the previous EU legislation. The Regulation requires companies to classify, label and package appropriately their hazardous chemicals before placing them on the market.

According to the CLP Regulation, communication of hazards⁴ of chemicals in the form of labelling is the main way to inform the general public on the safe use of chemicals. In particular, the CLP hazard label encompasses the following elements:

- (a) the hazard pictogram (as specified in Annex V to the CLP Regulation), intended as a graphical composition that includes a symbol plus other graphic element in order to convey specific information on the hazard concerned;

³ Regulation (EC) No 1272/2008 of the European Parliament and the Council on classification, labelling and packaging of substances and mixtures, OJ L 353, 31.12.2008, p. 1.

⁴ The term hazard refers to the intrinsic capacity of chemical substances or mixtures to cause adverse effects on human health or the environment as established in accordance with the criteria of the CLP Regulation.

- (b) the signal word that indicates the relative level of severity of hazards to alert the reader to a potential hazard (i.e. Warning, Danger);
- (c) the precautionary statement that describes recommended measures to minimise or prevent adverse effects resulting from exposure to a hazardous substance or mixture due to its use or disposal (precautionary statements are standardized and are defined in Annex IV of the CLP Regulation);
- (d) the hazard statement that defines the nature of the hazards of a hazardous substance or mixture, including, where appropriate, the degree of hazard (hazard statements are standardized and are defined in Annex IV of the CLP Regulation)

In accordance with Article 34(1) of the CLP Regulation, ECHA carried out a study to evaluate the communication on information to the general public on the safe use of substances and mixtures and the potential need for additional information on the label. The study was based on two main elements:

- a) a Eurobarometer opinion poll conducted in 2010, which surveyed the perceptions of European citizens towards the label comprehension and understanding of related hazard pictograms. The survey involved more than 26 000 members of the public from all Member States and the results published in 2011 were considered as representative of the views of 500 million citizens in the EU.
- b) an additional qualitative study conducted in 2011 - by a team of European academics with expertise in risk perception, research and analysis - in order to provide further elements on public perceptions and individual behavioural patterns. The study consisted of interviews with over 240 citizens in three Member States and intended to reveal how people evaluate chemical products and how these judgements link to safety-relevant behaviours.

On 20 January 2012, ECHA has transmitted the report on the "*Study on the Communication on Safe Use of Chemicals to the General Public*" to the Commission⁵. In the following sections, this Report will summarise the main findings of the study, compare them to other similar reports provided by internationally recognized organisations (UN, UNITAR, etc.) and draw conclusions on whether an amendment of the CLP Regulation is justified or not.

3. Findings on communication of information on chemicals to the general public

3.1. Recognition and understanding of CLP pictograms and other label elements

The surveys conducted for ECHA's study emphasized that the levels of recognition and understanding of the new hazard pictograms differ considerably from one Member State to another, and that there is generally little understanding of the safety measures that need to be taken when using chemical products. Besides, they showed that most respondents felt only moderately informed or not well informed about the hazards associated with chemical products.

In particular, the Eurobarometer Survey has shown that, in the EU as a whole, the most common means of determining whether a chemical product is hazardous, is to read the safety

⁵ The study is available at ECHA website:
http://echa.europa.eu/documents/10162/13559/clp_study_en.pdf

instructions. This has been confirmed for the products perceived as most hazardous, such as pesticides and insecticides (50 % of respondents always read safety instructions before using them). By contrast, for other product categories, such as car care product and household detergents, less than one third of respondents declared to read the safety instructions before use.

The second survey on risk perception stressed that the correlation between risk perception and safety behaviour is rather low. This means that risk perception is not *per se* a sufficient driver for safety behaviour. On the contrary, emotional behaviour and past experience seem to play a much more important role.

According to the feedback from the two above mentioned surveys considered in ECHA's study, some new hazard pictograms are well recognised by the general public (see Figure 1), whilst others are not.

It is important to recall that many of the new pictograms introduced by the CLP Regulation are rather similar to the existing labels under the previous EU legislation; for some the only visible difference is the background colour (orange in the old labels, white in the new) and the shape (square in the old pictograms, a red diamond in the new CLP pictograms).



Figure 1: New CLP pictogram for Flammability and the previous one, very high recognition by general public (over 80%).

Likewise, the meaning for the pictograms with a similar predecessor is often correctly understood (see Figure 2).



Figure 2: New CLP pictogram for 'Explosives' and the previous one, very high understanding by general public (over 80%)

Not surprisingly, the new CLP pictograms, that have no similar 'predecessor' under the previous EU legislation, are scarcely known or understood by the general public (see Figure 3).



Figure 3: New CLP pictogram for 'Serious Health Hazard', not present previously, very low recognition and understanding of its meaning by the general public (respectively 20% and 12%).

However, in some specific cases the findings were rather surprising:

- the new 'exclamation mark' pictogram (see Figure 4) was familiar to 59% of those interviewed, despite the fact that it had no similar predecessor in the EU system. However, the meaning (Health Hazard)⁶ was understood by only 11% of the interviewees.
- the meaning of the 'skull and crossbones' pictogram (see Figure 5) was understood by only one third of those interviewed, whilst other studies showed a much higher level of understanding⁷.



Figure 4: New CLP pictogram for Health Hazard, familiar to 59% but understood by only 11% of general public.

⁶ It is believed that the familiarity with the symbol derives from the fact that people see the exclamation mark in different contexts e.g. in road signs.

⁷ Environmental research 108 (2008) 419-427 and Spanish National Consumer Institute Project "Product Safety. Pictograms Safety and danger" 2011. It should be noted, though, that in the ECHA study consumers were asked directly to indicate the meaning and were not provided with a list of possible choices, which could have been the case in the other studies.



Figure 5: New CLP pictogram for Acute Toxicity and the previous one, low comprehension by general public (33%).

Regarding the signal words, the Eurobarometer survey indicated how the word "danger" is generally considered stronger than the word "warning" by most people in the EU. However, results in a few Member States were different, which emphasises that standardisation and translation across the 27 European Member States with many different languages remain a challenge.

Finally, no direct findings have been provided on the comprehension of hazard statements and precautionary statements. Therefore, due to the importance of those elements in the hazard communication, further investigations should also assess the level of understanding for hazard and precautionary statements.

3.2 Need for awareness raising activities and training

The first clear outcome from the levels of recognition and understanding of CLP Pictograms is that awareness-raising activities are needed to enhance the general public's recognition and understanding of the new CLP labels.

It should be noted, though, that the new labelling is currently only mandatory for chemical substances, while most of the chemical products sold to the general public are actually mixtures, for which the CLP Regulation will apply from 1 June 2015. Nonetheless, it is important to increase public awareness and promote the understanding of hazard labels and associated safety measures.

According to the findings in ECHA's study, awareness-raising activities need to take into account national hazard perception patterns and should be targeted at the general public, as well as at specific audiences such as families, single households, school children, etc. using a variety of didactic means (web pages, leaflets, audio-visual material, etc.).

In fact, perceptions of the hazards pertaining to certain chemical products differ considerably between Member States and also between different population subgroups within the same Member State. Consequently, communication and awareness raising activities will need to address national audiences in a differentiated manner, taking into account language barriers and adequate communication channels, e.g. smart media applications, social media.

More generally, those activities should be targeted to:

- refresh knowledge/ familiarise the public with the new pictograms and the signal words;

- encourage the general public to actually read the label and consider the pictograms, hazard and precautionary statements to raise awareness;
- inform about the possible consequences of wrong handling of hazardous products in order to reduce a false sense of safety.

Awareness-raising activities need to be tailored to the institutional capacities and available resources of the public and private bodies involved. They should also be adapted to various settings, with targeted messages available for instance at points of sale, public spaces, schools or homes.

Among the target groups children are probably one of the most sensitive and they should be well informed about the hazards of products. Specific educational material will have to be developed for distribution in schools – some Member States are already undertaking such activities⁸.

Both, for the preparation and conducting the study, ECHA relied on extensive consultation of the Agency's Risk Communication Network (RCN) established in autumn 2008. One role of the RCN is to establish a mechanism for the exchange of information, experience, case studies and good practice among those in charge of coordinating risk communication in REACH Competent Authorities (MSCAs) and ECHA. Thus, the network may help members to meet their communication needs vis-à-vis the general public on risks and the safe use of chemicals, avoiding conflicting messages from public authorities and establishing best practice in risk communication.

Furthermore, ECHA's regular contacts with MSCAs and their CLP experts as well as its outreach to national CLP helpdesks (via the HelpNet network of national REACH and CLP helpdesks) puts the Agency in a good position to sustain and coordinate awareness raising activities with regard to CLP.

3.3. Product appearance and hazard information on the label

ECHA's study revealed that messages regarding the hazards of a chemical product expressed explicitly or inherently through its packaging may override the messages contained in a CLP label. For instance, all the following factors may influence significantly the perception of hazards:

- the shape and colour of packaging (i.e. red/black colours versus green/white colours) ;
- the presence of “innocence” related visual elements on a product (for example, pictures of a child, a mother, a flower, a tree etc.);
- brand recognition and appreciation;
- understanding a product to be more “natural” than industrial through ambiguous visual elements (pattern of wild animals, forest etc.).

ECHA's study recommends that industry should be encouraged to bring product appearance and packaging more in line with the hazard information on labels, making use of behavioural

⁸ ECHA's Risk Communication Network is the institutional forum for the exchange of Members States experiences in the field of communication on the safe use of chemicals
<http://echa.europa.eu/en/web/guest/about-us/partners-and-networks/risk-communication-network>

drivers to amplify the label's message, thereby promoting the appropriate safety behaviour in consumers. In fact, according to ECHA, an attractive package should not seduce a consumer into ignoring or taking too lightly the warnings that the CLP Regulation has made mandatory.

Therefore, efforts to align the 'messages' regarding product hazards from packaging appearance and label content can be a potential avenue for raising awareness and improving behaviour on the safe use of chemicals. Authorities, manufacturers and distributors could – through voluntary joint public-private action – seek to promote self-regulatory steps in this regard (to be noted as there are already some ongoing initiatives where industry has undertaken voluntary information campaigns to increase users' awareness and encourage the safe use of their products⁹).

Finally, it should be considered as well that previous studies carried out on consumer perception of hazards warnings have indicated that consumer attention can be diverted by too much information on a label regarding all potential hazards¹⁰. In contrast, warnings focused on specific hazards (as pictograms) may enhance attention and thus increase consumer protection.

Therefore, potential amendments of the requirements for labelling should focus on simplification of contents and layout improvement, rather than propose to add further information.

3.4. A new analysis after 2015

As outlined previously, both field surveys provided feedback on the recognition and understanding (or lack thereof) of the main risk communication elements and individual CLP pictograms. Their findings show that some hazard pictograms are hardly known or understood.

This is not surprising given that the provisions of Title III and IV of the CLP Regulation on “*hazard communication in the form of labelling*” and “*packaging*” only took effect with respect to individual substances on 1 December 2010 (see Article 62 of the CLP Regulation).

In addition, the vast majority of chemicals products used by consumers are actually mixtures containing several substances. The CLP provisions will be mandatory for mixtures only as of 1 June 2015. During the transitional period, the previous system of labelling and hazard pictograms for mixtures (Directive 1999/45/EC) continues to apply. Consumers will, therefore, continue to see mainly the old pictograms on chemical products they buy.

Given that Article 34(1) of the CLP Regulation set a deadline of 20 January 2012, ECHA's study had to be conducted somewhat prematurely, with the Eurobarometer Survey being conducted already at a time (between November and December 2010) when the general public had hardly encountered the new hazard pictograms in real life. When the “qualitative research” (in July 2011) undertook to gather more information, the obligation to use the CLP pictograms for labelling and packaging substances had only been in effect for less than a year, whilst mixtures were still labelled almost exclusively under the previous legislation.

⁹ <http://www.cleanright.eu/>

¹⁰ Study on Comprehensibility of labels based on Directive 88/379/EEC on Dangerous preparations, 1999 European Commission DG III; UN GHS 4th Revised Edition, 2012 Annex 5 Consumer Product labelling based on the likelihood of injury.

Therefore, it seems appropriate to re-visit the level of understanding of European citizens at a later date, when their experience and acquaintance with the pictograms will have developed, preferably after the CLP pictograms also become obligatory for mixtures. A new analysis of the impact of the CLP pictograms on EU citizens' behaviour and understanding should be undertaken some time after June 2015.

4. Conclusion

In the light of the findings of ECHA's study conducted in accordance with Article 34 (1) of the CLP Regulation and other studies on the same matter, changes to the CLP pictograms themselves are not recommended as it is more beneficial to allow the public to get used to the new global system, steadily improving the overall understanding of the hazards posed by chemicals and encouraging a safer use of household chemicals in particular.

Considering also that a proposed change of the CLP pictograms would require the re-negotiation of the relevant GHS provisions established in a multilateral UN context, there is currently no benefit in altering the label conventions. Instead, at this juncture, the emphasis of activity needs to be placed on awareness-raising and knowledge-promotion.

Consequently, the Commission considers that, at this point in time a legislative proposal to amend the CLP Regulation is not justified and recommends that:

- awareness raising activities should be prepared and conducted to enhance safe use of chemicals by EU citizens coordinated/promoted by the ECHA's risk communication and helpdesk networks – preferably in the run-up to the deadline as of which the CLP labelling obligations will apply to chemical mixtures (1 June 2015);
- manufacturers and importers could be encouraged to bring product appearance and packaging more in line with the hazard information on labels;
- contents simplification and layout improvement on substance and mixture labels should be promoted (for instance providing further guidance on omitting certain information elements and on precedence rules);
- a further analysis of the understanding of the safe use of substances and mixtures is conducted some time after 1 June 2015 (also hazard and precautionary statements should be considered).