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2014 CMR Report

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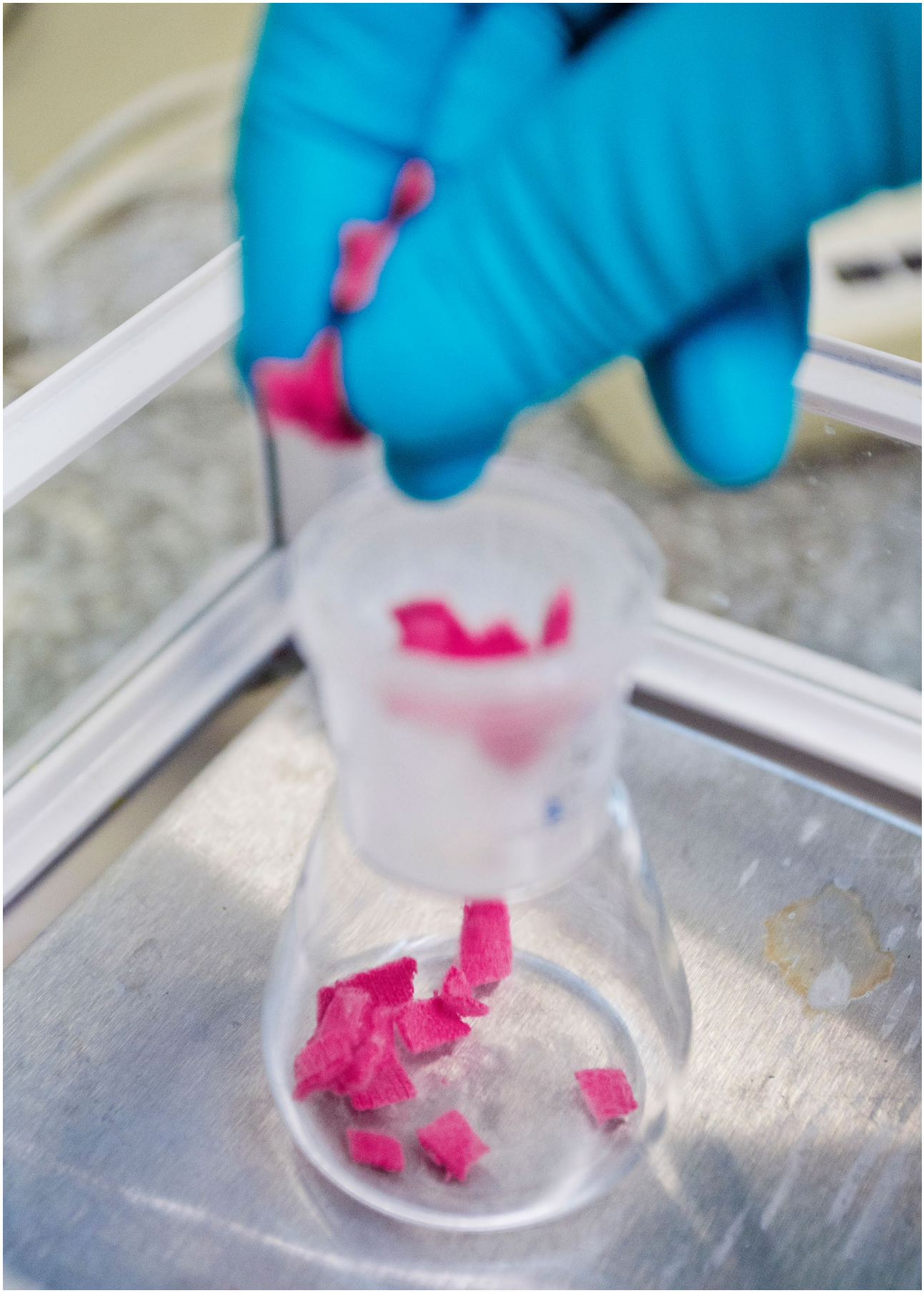
List of abbreviations

Abbreviation	Description
ATP	Adaptation to technical progress
Carc.	Carcinogenicity
CAS	Chemical abstracts service
EU	European Union
CLH	Harmonised classification and labelling
CLP	Regulation (EC) No 1272/2008 of the European Parliament and of the Council of December 2008 on classification, labelling and packaging of substances and mixtures
CMR	Carcinogenic, mutagenic, reprotoxic
CoRAP	Community rolling action plan
C&L	Classification and labelling
DSD	Dangerous substances directive, Council Directive 67/548/EEC
EC	European community
ECHA	European Chemicals Agency
IUPAC	International union of pure and applied chemistry
Muta.	Mutagenicity
REACH	Regulation (EC) No. 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
Repr.	Reproductive toxicity
MSCA	Member state competent authority
SVHC	Substances of very high concern
UVCB	Unknown or Variable Composition, Complex Reaction Products and Biological Materials



Executive Summary

In the EU, substances with carcinogenic, mutagenic or reprotoxic properties (CMR substances) should normally have a harmonised classification. At the moment, about 1 400 substances (including substances of unknown or variable composition, complex reaction products or biological materials (UVCB)) and 23 groups of substances (group entries) have a harmonised classification and labelling (CLH) for CMR and are listed in Annex VI to the CLP Regulation.

This report has two aims. Firstly, to see the extent to which registrants and notifiers have classified CMR substances in line with the harmonised classification included in Annex VI (part A) and secondly to see which substances on the EU market are classified for CMR properties by at least some notifiers or registrants but do not currently have a harmonised classification (part B).

For CMR substances already listed on Annex VI (including those belonging to group entries), the self-classification reported in the C&L Inventory (which includes classifications derived from REACH registrations) was compared with the harmonised classification and the inconsistent (less stringent) notifications were noted.

In general, adherence to harmonised CMR classification on Annex VI was high, with only about 3 % of all received notifications for harmonised CMR substances not following the harmonised classification. Due to complexities within Annex VI, such as the presence of notes, this figure may be slightly higher in reality.

Of those notifications not adhering to the harmonised classification, a significant proportion fell within certain categories of Annex VI entries, such as group entries and recently added/updated entries on Annex VI. Of the 13 entries with CMR classification since the third Adaptation to Technical Progress (ATP) became fully applicable on 1 December 2013, eleven showed significant deviations from the harmonised classification among notifiers. Likewise, of the 23 group entries with CMR classification in Annex VI, seven showed significant deviation among notifiers. In the subset of notifications derived from REACH registration dossiers, the deviation was much lower than seen for the notifications as a whole.

The C&L Inventory can be a valuable tool for authorities to identify and prioritise substances of concern. The pool of C&L Inventory substances for which we received at least one CMR notification not justified by an existing Annex VI entry (e.g. due to the presence of harmonised impurities or constituents at concentrations above the applicable concentration limit) was used to identify CMR substances which have not yet been harmonised or which could warrant a more stringent harmonised classification. The analysis resulted in several thousand potential CMR substances of which several hundred have been registered under REACH.

In conclusion, the vast majority of notifiers and registrants have classified CMR substances in line with the legally binding harmonised classification. For a limited number of cases, deviations have been identified. ECHA will bring these to the attention of the EU Member States to initiate further action.

In addition, there are a few hundred substances currently on the EU market in significant quantities with potential CMR properties warranting further scrutiny and which could be prioritised for harmonised classification and labelling, depending on the potential for exposure for workers or the general public.

1. Introduction

1.1 AIMS AND SCOPE

In the EU, substances which have carcinogenic, mutagenic or reprotoxic properties (CMR substances) should normally have a harmonised classification. In 2012, ECHA published the results of an initial automated screening of CMR substances, focusing on the registration and notification status of harmonised CMR substances . The present report provides further analysis on CMR substances with the aim to both monitor the extent to which registrants and notifiers classify their substances in line with the legally binding harmonised classifications and to identify substances that have been self-classified for CMR properties which have not yet been harmonised. The results could then be further used to prioritise substances for future harmonisation or enforcement.

1.2 THE CLP REGULATION AND NOTIFICATIONS TO THE C&L INVENTORY

Regulation (EC) No 1272/2008 on the classification, labelling and packaging of substances and mixtures (CLP Regulation) aims to ensure a high level of protection of human health and the environment by identifying the hazardous properties of substances and mixtures and clearly communicating those to downstream users and consumers. Substances, which have carcinogenic, mutagenic or reprotoxic properties are considered of special concern.

Manufacturers and importers of hazardous substances have the obligation to self-classify their substances and mixtures and make sure they are labelled and packaged accordingly. For some substances (e.g. those with CMR properties), however, harmonised classification and labelling at Community level is considered necessary. Usually, a Member State competent authority (MSCA) writes a proposal for classification, which is then submitted to ECHA. The Risk Assessment Committee provides an opinion on the proposal and forwards it to the Commission, along with the comments received from parties concerned. The substance is then included on Annex VI to CLP and the classification and labelling becomes mandatory for all suppliers of that substance. The obligation to self-classify for the hazard classes not included in the entry on Annex VI remains. All substances that fulfil the criteria for carcinogenicity, germ cell mutagenicity or reproductive toxicity in categories 1A, 1B or 2, as well as respiratory sensitisation category 1 should normally be harmonised (CLP Regulation Art. 36(1)).

All hazardous substances placed on the market in the EU, whether on their own or in a mixture (resulting in the mixture to be classified), need to be notified to ECHA, regardless of tonnage. In addition, all substances subject to REACH registration also need to be notified. The obligation to notify rests with the manufacturer or importer of the substance and the notification should contain the substance identity (including impurities and additives) and the classification and labelling of the substance. These notifications are then made available in the C&L Inventory and disseminated through the ECHA website.

At the time of analysis, about 125 000 substances had been notified to the C&L Inventory by EU importers and/or manufacturers, including both registered and non-registered substances. By contrast, Annex VI to CLP contains less than 4 200 entries, of which 1 300 entries contain a harmonised classification for one or more CMR properties. The wealth of information present in the databases that ECHA has at its disposal can be of key importance to identify and prioritise candidates for harmonisation.

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[1] Available at: http://echa.europa.eu/documents/10162/13562/cmr_report_en.pdf

1.3 PREVIOUS ANALYSIS

In 2012 ECHA published the first CMR report, identifying which of the substances that had already been harmonised as CMR category 1A/1B in Annex VI to the CLP Regulation had been either notified or registered. The screening focused only on substances which were identified using numerical identifiers (EC and/or CAS numbers) on Annex VI and excluded those classified in category 2 and all group entries. The outcome of this analysis was that about 60% of the Annex VI CMR 1A/1B substances had either been registered or notified, while for the remaining 40% of substances, no match could be found. The 2012 CMR report concluded that further screening of the information supplied, including not only harmonised CMR substances, but also those that manufacturers and importers have self-classified as CMR, would be needed.

2. Methodology

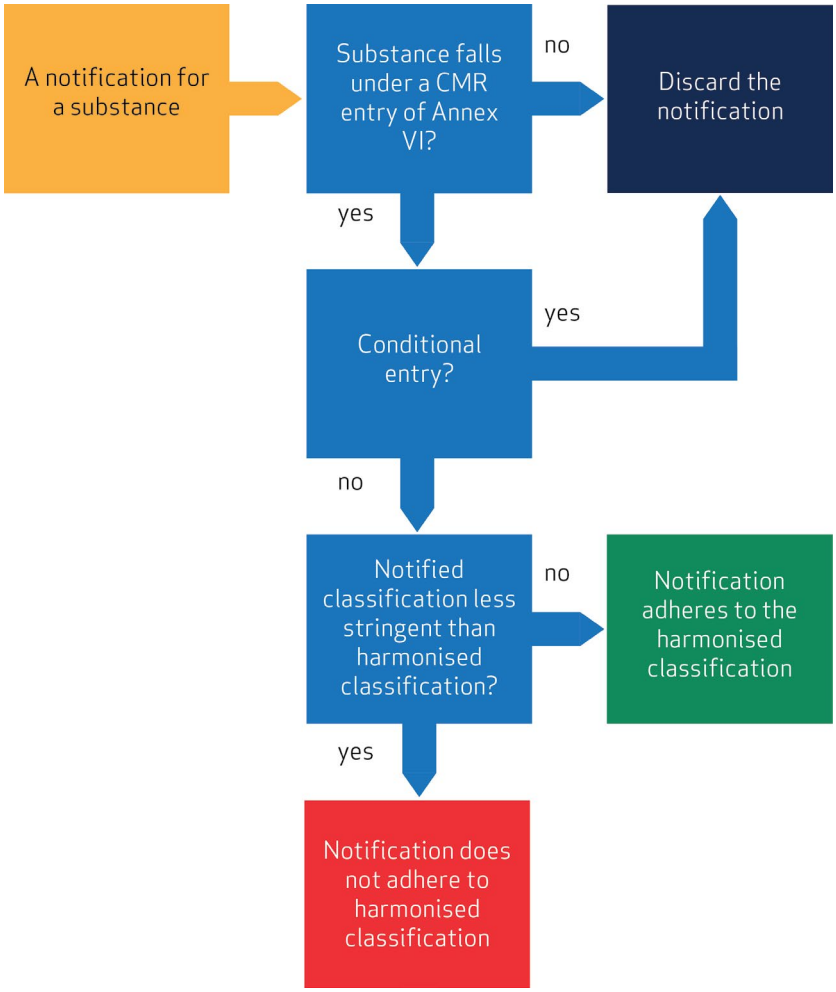
The analysis is divided into two distinct parts. Part A examines how notifiers and registrants adhere to the harmonised classification of CMR substances while part B focuses on identifying potential candidates for harmonised classification. The description of the analysis below is intended to describe the general approach for both analyses; while more details on the methodology and limitations can be found in Annex II.

2.1 PART A: HARMONISED CMR SUBSTANCES

The starting point for analysing adherence with harmonised classification and labelling is all substances covered by an entry on Annex VI classifying as category 1A, 1B or 2 for carcinogenicity, mutagenicity or reproductive toxicity, up until and including the third Adaptation to Technical Progress (ATP) to the CLP Regulation (which entered into force on 31 July 2012 and became legally binding from 1 December 2013) for which ECHA has received at least one CMR notification in any category by 19 May 2014. As each REACH registration is also a C&L Inventory notification, all registrations were included in the analysis. So-called group entries (e.g "Arsenic acid and its salts"), which cover a group of substances not explicitly defined in Annex VI, were also included in the analysis. So-called conditional entries, where the harmonised classification may not apply in all cases (such as when an impurity is not present or the state/form is different) were not analysed specifically. For more details on group entries and conditional entries, please see Annex II.

The analysis captures the classification reported in the notification/registration and compares with the harmonised classification. When the reported classification is less stringent than the harmonised, this is flagged as not adhering to the harmonised classification (Fig. 1). More stringent classifications, although not strictly adhering to the harmonised classification, are not analysed specifically. More stringent classifications could for example be due to the presence of a harmonised impurity. Impurities, additives and constituents were not analysed specifically in part A.

Figure 1: Analysis of adherence with harmonised CMR classification



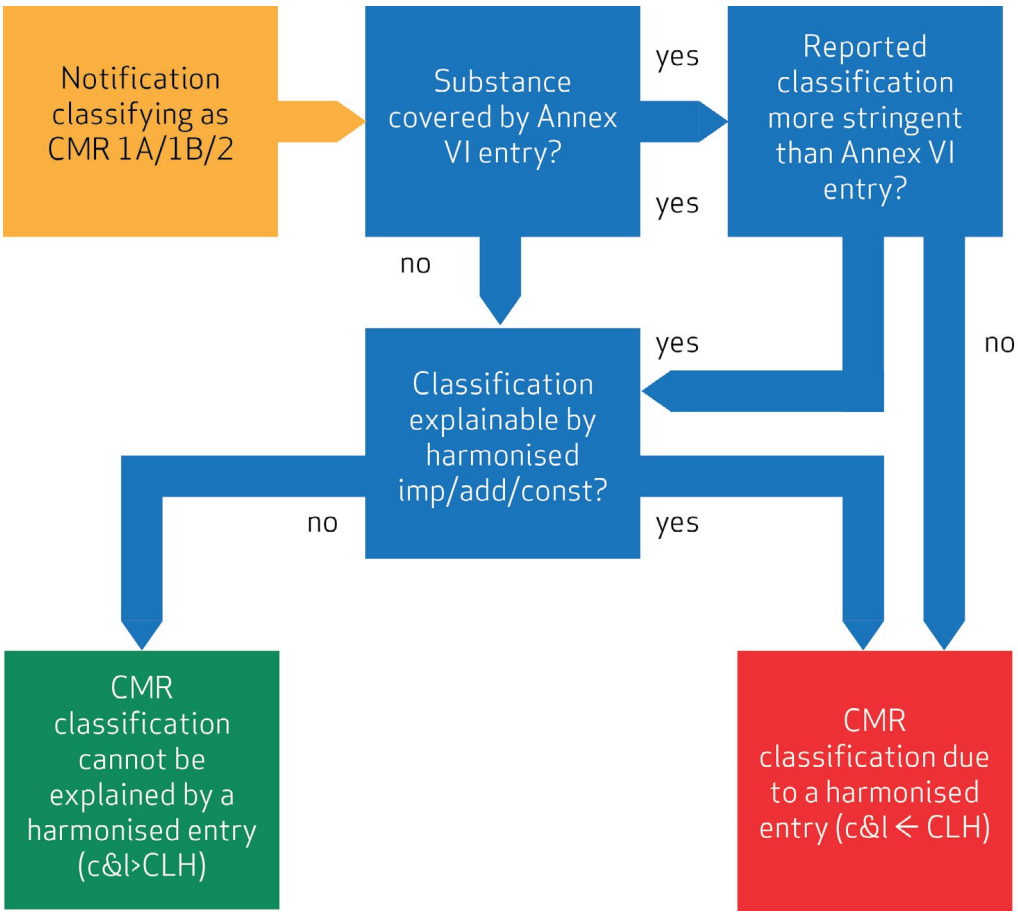
All notifications for harmonised CMR substances were counted (i.e. all those ending up in either the red or the green box in Fig. 1) and results are reported in section 3.1. Please note that notifications and registrations can be submitted both by individual companies and groups of companies. Where they were submitted by groups, all companies within the group were counted. The number of notifications reported is therefore the same as the number of companies behind them. Further details on how numbers of notifiers were counted and the reported classification determined can be found in Annex II.

2.2 PART B: SUBSTANCES SELF-CLASSIFIED AS CMR

The starting pool for identifying potential CMR substances were all notifications to the C&L Inventory (including REACH registrations) received before 19 May 2014. As shown schematically in Fig.2, substances with at least one notification (from a notifier or registrant) for carcinogenicity, mutagenicity or reprotoxicity (any category) were included in the analysis if the notified classification could not be explained by an existing harmonised classification for that substance (i.e. the substance is part of an Annex VI entry with a harmonised classification for the same endpoint in the same or a higher category). Those notifications where the CMR classification could have resulted from a harmonised impurity, additive or constituent were excluded. Likewise, substances falling under group entries on Annex VI were also excluded to the extent

possible. For further information on how exclusions were done, please see Annex II.

Figure 2: Analysis of CMR self-classifications. The analysis was conducted separately for carcinogenicity, mutagenicity and reproductive toxicity.



As can be seen from Fig. 2, both those substances for which no harmonised classification exist as well as those substances already harmonised, but for which a more stringent classification was submitted, were included in the analysis. To represent this, we have employed the shorthand "c&l > CLH" and "c&l ≤ CLH".

The former means that the CMR classification reported cannot be explained by an existing harmonised classification, while the latter means that the reported classification is the same or below the expected harmonised classification based on either the actual substance or any impurities, additives or constituents. This terminology is used in the same way in the results section and in any annexes.

Any substance for which as least one notification ends up in the green box in Fig. 2 was included in further analysis and all notifications counted (both in the green and red box). As before, all companies behind a notification were counted and the number of notifications reported is therefore the same as the number of companies behind them. Further details on how numbers of notifiers were counted and the reported classification determined can be found in Annex II.

3. Results

3.1 PART A: HARMONISED CMR SUBSTANCES

In Part A of the analysis we investigated the extent to which the harmonised CMR classifications are followed by both registrants and notifiers when self-classifying their substances in their registration dossiers (registered substances) or by submitting a C&L notification directly in the C&L Inventory (non-registered substances). Since each REACH registration dossier is also a C&L Inventory notification, this information is recorded in the C&L Inventory, which, at the time of the analysis (May 2014), accounted for a total of approximately 125 000 substances.

The results obtained from the analysis of the CMR notifications in the C&L Inventory are presented in section 3.1.1, while section 3.1.2 deals specifically with the C&L Inventory notifications that come solely from REACH registrations.

3.1.1 Harmonised CMR classifications are followed to a large extent by C&L Inventory notifiers (particularly REACH registrants)

In the C&L Inventory we noted the classification of substances which are included in Annex VI to CLP (i.e. subject to harmonised classification and labelling) as either carcinogenicity (C), mutagenicity (M) and/or reproductive toxicity (R), in any (sub-)category (1A, 1B or 2). The count for the CMR entries is shown in Table 1.

We also counted how many of the CMR entries had at least one C&L Inventory notification (from either a registration dossier or a direct notification to the Inventory) that had been submitted regardless of classification (Table 1, column 3).

Table 1: Number of entries in Annex VI to CLP with harmonised CMR (1A/1B/2) classification and their status concerning C&L Inventory notification and REACH registration

HAZARD CLASS	# ENTRIES IN ANNEX VI TO CLP	# ENTRIES WITH AT LEAST ONE C&L NOTIFICATION	# ENTRIES WITH AT LEAST ONE REGISTRATION
Carcinogenicity	1086	693 (63%)	419 (38%)
Mutagenicity	553	320 (58%)	223 (40%)
Reproductive toxicity	278	227 (81%)	121 (43%)
Total	**1312**	**880 (67%)**	**521 (40%)**

The resulting figures are similar to those reported in the previous ECHA report in 2012, where about 60 % of the harmonised CMR 1A/1B substances were found to have received a notification and/or registration (regardless of classification). However, the numbers themselves in the previous and current report cannot be directly compared, as the present analysis groups results based on Annex VI entries and also includes the substances classified in category 2.

There can be a number of valid reasons why the substances could not be found in the registered or notified lists. The basis for Annex VI to the CLP Regulation was Annex I to the previous Council Directive (67/548/EEC), which contained a compilation of harmonised C&L entries that were agreed upon over several decades.

Many substances may simply no longer be manufactured or marketed in the EU. In addition, it is not a prerequisite for a substance to be placed on the market in order to include it in Annex VI to CLP. In fact, some substances on Annex VI are rare and unlikely to be placed on the market. An example of this is bunsenite, a rare mineralogical form of nickel oxide (Annex VI index no 028- 003-00-2).

Table 1 only shows whether or not a notification/registration has been received for harmonised CMR substances. In order to examine consistency with the harmonised classification for CMR classes, the notifications for substances with a non-conditional harmonised entry in Annex VI to CLP as CMR, categories 1A, 1B or 2, were selected for further analysis. For the purpose of this analysis, the Annex VI entries for which a classification may be conditional (e.g. notes apply; cf. section 2.1) were considered as following those notes and hence in accordance with the harmonised classification, so that they were excluded from further consideration. In Annex VI to CLP there are 278 conditional entries for carcinogenicity, 179 for mutagenicity and two for reproductive toxicity.

Table 2: Number and percentage of notifications not following Annex VI to CLP

	# NOTIFICATIONS	# INCONSISTENT NOTIFICATIONS	# INCONSISTENT NOTIFICATIONS CORREFCTED FOR ERRORS DURING THE NOTIFICATION PROCESS
Carcinogenicity	122750	7178 (5.85%)	4224 (3.44%)
Mutagenicity	54130	4737 (8.75%)	1640 (3.03%)
Reproductive toxicity	90543	8961 (9.89%)	3316 (3.66%)

Around 5-10 percent of notifiers do not apply the correct harmonised classification in their notifications for non-conditional CMR Annex VI entries. As stated above, during the analysis, only classification was analysed. However, during manual verification, it became apparent that a number of notifiers made an error in the notification process by only filling in the labelling section with the hazard statement for the harmonised hazard class. An example of this is nickel diacetate (EC no 206-761-7, Annex VI index no 028-022-00-6), which has a harmonised CMR classification as Carc. 1A, Repr. 1B and Muta. 2.

Out of the 1 136 notifications for this substance, 1 005 notifiers do not apply the correct CMR classification. They do all, however, include the appropriate hazard statements in the labelling section. It might therefore be reasonable to assume that they are aware of the harmonised classification but have made an error in the notification process. To account for this relatively common error, manual verification was conducted on the entries with the highest number of notifiers who did not follow the harmonised classification. The entries that were not manually checked had few inconsistent notifications and would not affect the outcome to any extent. The results of this analysis are reported in the last column of Table 3.

The level of inconsistency drops several percentage points and is now just above three percent for each of the endpoints. Due to the complexities of the notifications, where some notifications are consistent with one endpoint and not another, no overall figure can be derived.

Although the overall inconsistency is low, some more information could be derived by examining whether it is spread evenly throughout the entries or whether particular entries stand out. Table 3 shows the number of non-conditional entries for which notifications have been received and the number of entries for which at least one notifier has not applied the mandatory harmonised classification. Results are grouped based on Annex VI entries for each hazard class.

For those entries covering multiple substances, the entry is considered to have inconsistent notification(s) if there is at least one discrete substance in the entry for which there is at least one notification that does not classify for the same endpoint and category (or more stringently) as in Annex VI. As can be seen, for 332 of the 601 entries, no inconsistencies were found as all notifiers applied the correct classification. The remaining 269 entries contained all the inconsistent notifications.

Table 3: Number and percentage of non-conditional CMR entries in Annex VI to CLP with at least one inconsistent C&L notification

	# NON-CONDITIONAL ENTRIES (TOTAL)	# ENTRIES WITH AT LEAST ONE INCONSISTENT NOTIFICATION
Carcinogenicity	415	165
Mutagenicity	141	79
Reproductive toxicity	225	121
Total	**601**	**269**

Within those 269 entries with inconsistent notifications, the inconsistency varied greatly. Some had only a handful of inconsistent notifiers while for others the majority were inconsistent. It is worthwhile examining further those entries with relatively high inconsistency across notifications with a view to identify any possible explanations. Those entries which had more than 5% inconsistency (after correction for notification errors) were selected for more detailed analysis. A full breakdown of all entries with more than 5% inconsistency (69 in total out of 601 notified/registered entries, Table 4), reveals that entries which have recently been added to Annex VI or updated show relatively high levels of inconsistency with the harmonised classification. It should be noted that the cut-off point of 5% for further analysis was arbitrarily chosen and those entries below that value should not be considered to have an acceptable level of inconsistency.

Table 4: Further analysis of CMR entries with over five precent inconsistency with the harmonised classification

	# OVER FIVE PERCENT INCONSISTENCY	# GROUP ENTRIES	# INSERTED/UPDATED WITH ATP03
Carcinogenicity	32	6	6
Mutagenicity	12	0	2
Reproductive toxicity	32	1	6
Total	**69**	7	**11**

The third ATP to CLP entered into force in July 2012 and the harmonised classification and labelling should be applied as from December 2013. Nevertheless, 11 out of the 13 entries updated/amended with CMR properties with the third ATP showed more than five percent inconsistency, with almost 5 000 notifiers not applying the harmonised classification. Among them, group entries are predominant, with 7 out of 23 group entries with CMR properties and more than 600 notifications inconsistent with Annex VI. A complete overview of entries with more than five percent inconsistency among corresponding notifications can be found in Table A.1 of Annex I.

3.1.2 Classifications of harmonised CMR entries in REACH registration dossiers

In this section, the classification of harmonised CMR entries in Annex VI to CLP provided in REACH registration dossiers is examined. All REACH registration dossiers were analysed, regardless of registration type (Article 10 vs. intermediate registrations submitted according to Articles 17 and 18).

The nature of the analysis is the same as reported in section 3.1.1, but manual correction of labelling errors was not required in this case (analysing registrations only). As can be seen in Table 1, registrations are available for around 40 % of harmonised CMR (1A, 1B or 2) entries in Annex VI to CLP. This is quite similar to the CMR 2012 report, where the overall figure for substances harmonised for CMR properties in categories 1A and 1B was 36%.

Table 5 shows the number of registrations received for harmonised CMR entries on Annex VI and the number of registrations that do not adhere to the harmonised classification. For carcinogenicity and mutagenicity, inconsistency with the harmonised classification is almost negligible with three registrations (covering three substances) out of several thousand.

The inconsistency for reproductive toxicity is somewhat higher (with 57 registrations covering seven substances identified out of about 1 400 registration or 3.9%). The majority (48) of the inconsistent registrations for reproductive toxicity are associated with the group entry for lead compounds (Annex VI index number: 082-001-00-6). No registration was inconsistent for Annex VI entries updated/added with the third ATP. The 10 substances for which inconsistent registrations were found are reported in Table A.2 of Annex I.

Table 5: Number and percentage of registrations not following harmonised CMR classification

	# REGISTRATIONS	# INCONSISTENT REGISTRATIONS
Carcinogenicity	3964	2 (0.05 %)
Mutagenicity	1642	1 (0.06 %)
Reproductive toxicity	1451	57 (3.9 %)

3.2 PART B: POTENTIAL CMR SUBSTANCES ON THE EU MARKET REQUIRING HARMONISED CLASSIFICATION

The analysis in part B aims to identify both the CMR substances which have not yet been harmonised in the EU and the existing harmonised CMR substances for which a revised (more stringent) classification might be warranted. Therefore, in addition to all notifications self-classifying in categories 1A/1B/2 for substances not yet harmonised, all notifications for CMR substances currently harmonised in category 2 and self-classifying in a more stringent category (1A or 1B) were included. In an effort to exclude all classifications resulting from currently known and harmonised CMR substances, the substance's constituents, impurities and additives were also examined. For further details on exclusion criteria, please see section 2.2.

In total, 5 675 substances were found to have at least one CMR notification classifying more stringently than the harmonised classification, if any (c&l > CLH). Of those substances, 1169 had been registered and for 707 of those, at least one registrant classified for CMR properties. Table 6 presents a breakdown of these figures for each endpoint.

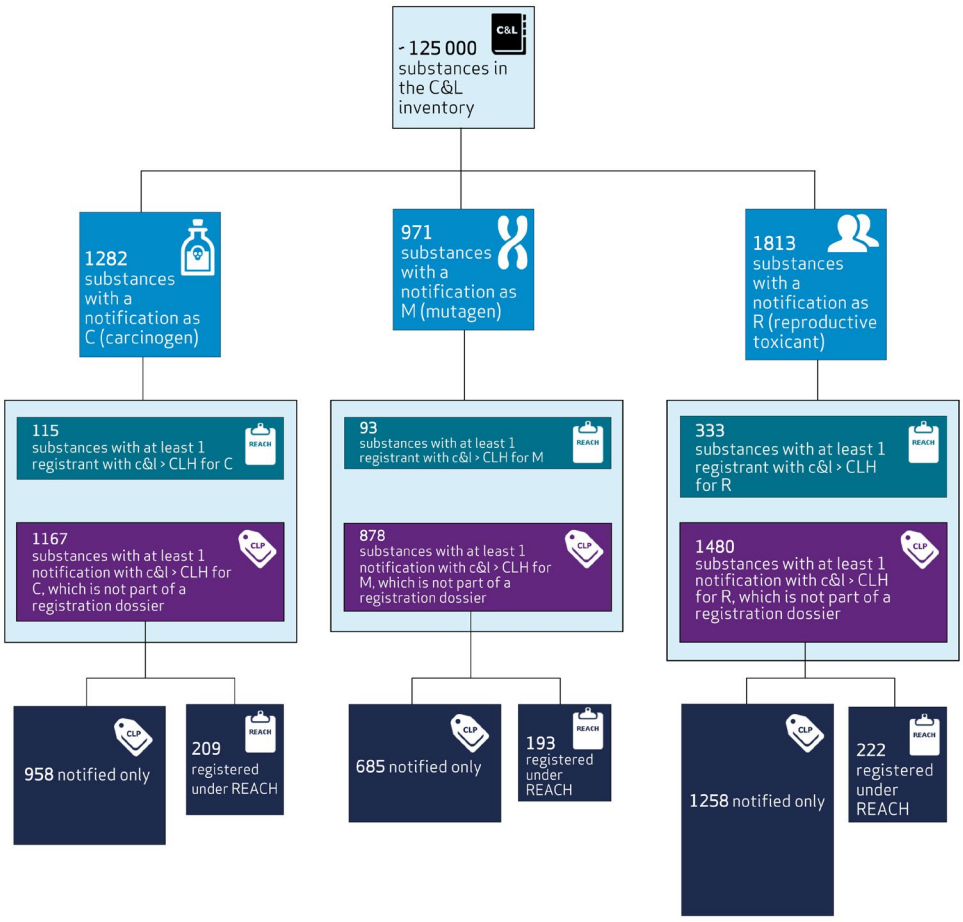
Table 6: Substances self-classified as CMR

	AT LEAST 1 NOTIFICATION AS C&L > CLH	REGISTERED	AT LEAST 1 REGISTRANT WITH C&L > CLH (FULL REGISTRATIONS)
Carcinogenicity	2539	454 (294)	231 (122)
Mutagenicity	1456	369 (241)	163 (93)
Reproductive toxicity	3340	757 (541)	516 (357)
Total	5675	1169 (813)	707 (467)

The diagram in Fig. 3 aims to present the results schematically, breaking them down for each endpoint and for each registration status. Taking carcinogenicity as an example, out of the 2 539 substances initially identified, 454 have been registered under REACH, of which 294 have a full REACH registration meaning that they are not solely used as intermediates. 231 of the registered substances and 122 of the fully registered ones have been classified as carcinogenic by the registrants themselves. The remaining 2 085 substances have not been registered under REACH (yet).

Notifications to the C&L Inventory do not contain any data supporting the classification. Such data is much more readily available in REACH registration dossiers (at least full registration dossiers). Those substances for which a REACH registrant has indicated CMR classification are therefore not only of concern, but could also be relatively easily verified. Other registered substances are also of potential concern, while substances for which only notifications have been received are perhaps of less concern at present.

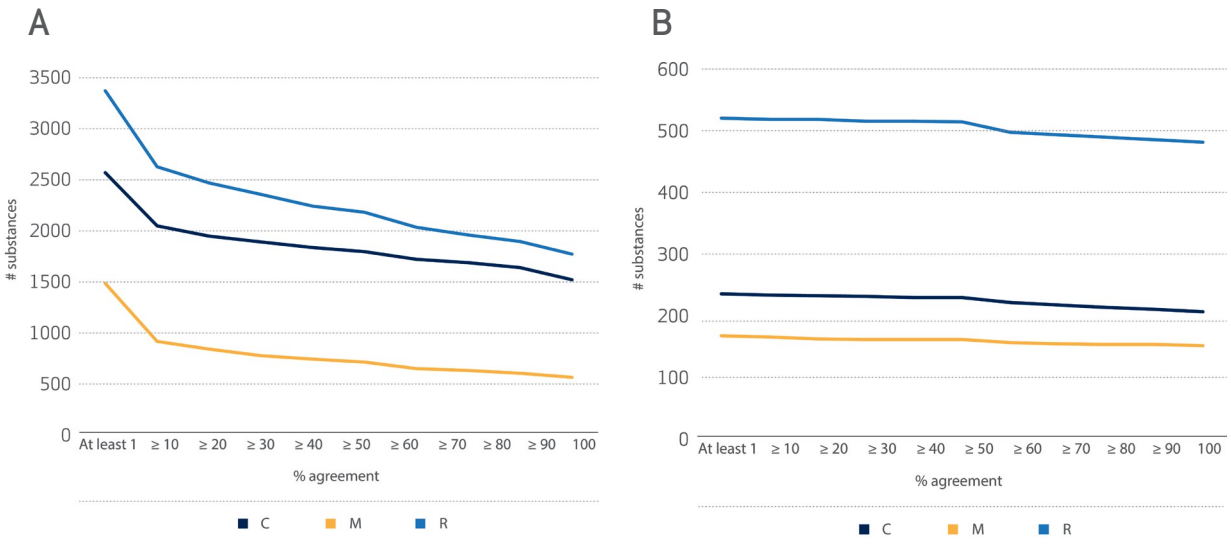
Figure 3: A schematic representation of the notified CMR substances, showing the breakdown per endpoint and the difference between substances for which a registration has been submitted and those which have only been notified. Please see text for details.



Another way of prioritising substances of concern for regulatory activity could be the level of agreement among notifiers and registrants. The level of agreement amongst both notifiers and registrants is represented in Fig. 4.

As can be seen in part A, although many substances have been identified, the level of agreement drops relatively quickly. Nevertheless, a few hundred substances show full agreement. The level of agreement among registrants is much higher. For almost all substances identified, there is full agreement on the CMR classification. It should be noted that the majority of substances (85% for notifications and 92% for registrations) showing full agreement were only notified or registered by one group of companies. In addition, although a higher level of agreement might indicate higher concern, one should bear in mind that CMR self-classifications put forward by a minority of notifiers may not necessarily be incorrect.

Figure 4: A. The level of agreement among notifiers.
B. The level of agreement among registrants.



4. Conclusions and follow-up actions

4.1 PART A: APPLICATION OF HARMONISED CLASSIFICATION AND LABELLING IN REGISTRATIONS AND NOTIFICATIONS

From the analysis it is apparent that there is a marked difference between registrations and notifications in the consistency of the classifications and the degree to which the harmonised classification for CMR properties is followed.

Registrations

From the analysis, it is clear that in REACH registrations the mandatory harmonised classification and labelling for CMR properties is followed in almost all cases. With only 60 registrations for 10 substances covered by 8 Annex VI entries not following the harmonised classification, the rate of consistency is very high. There is also a greater awareness for new/updated entries on Annex VI as no registrant was found to be inconsistent with ATP03.

It should however be pointed out that although all CMR substances imported or manufactured above one tonne per year should have been registered before the 2010 deadline, manufacturers or importers of substances in low volumes (1-100 tonnes/year) may have not identified their substances as harmonised CMR substances, and consequently may have not registered them by the 2010 deadline. In this case, the level of inconsistency may possibly increase somewhat after the 2018 registration deadline.

Notifications

At first glance, for about half of (non-conditional) Annex VI CMR entries there are notifications which do not follow the harmonised classification. The percentage of notifications for CMR properties that is not in line with Annex VI of CLP is very low, however. After correcting some obvious errors by the notifiers during the notification process, this percentage drops even further. It is lowest at 3.03 % for mutagenicity and highest at 3.66 % for reproductive toxicity. This means that there are a large number of substances where only a few notifications do not follow the harmonised classification.

The conclusion that can be drawn from the analysis is that a very high percentage of the notifications are in line with harmonised CMR classification and labelling, with the notable exception of a few group entries and recently added/amended entries.

General remarks

The presence of a harmonised CMR substance as a constituent, additive or impurity in concentration above the generic or specific concentration limits should lead to the classification of the substance as CMR. The present analysis does not examine adherence with Annex VI to CLP in these cases but they nevertheless warrant further scrutiny and ECHA is working with the Forum on identifying such substances for enforcement action.

So-called conditional entries (e.g. Annex VI entries with a note) where the harmonised classification might not always apply were not included in the analysis. Registrations not in line with the rules for these entries might increase the number of registrations not correctly classifying when these are taken into account.

Group entries show elevated percentages of registrations and notifications not applying the harmonised classification, which may be related to not identifying a substance as belonging to a group entry for several

reasons. Likewise, recently added/amended entries are also prominent among those with high inconsistency. This could be an indication that some notifiers viewed the notifications as a one-time obligation and do not keep them up to date.

4.1.1 Follow up actions

Despite the low percentage of notifications and registrations received to date deviating from the harmonised classification, some actions can be taken in an effort to decrease the number of self-classifications that are currently not in line with Annex VI to CLP.

Although relatively few in number, registrations which do not follow the legally binding harmonised classification for CMR properties are of specific concern as registrants may have failed to implement appropriate risk management measures on their sites; 12 registrations for seven discrete substances have been identified as such. These cases will be forwarded to enforcement authorities for follow-up. The remaining 48 registrations, covering three substances were identified as deviating from the classification of a single group entry on Annex VI (covering lead compounds). The companies involved will be contacted by ECHA with the observation that the group entry in Annex VI is not followed and will be requested to clarify their classifications.

With regard to the higher number of notifications that diverge from the harmonised classification, ECHA is considering taking action in the form of a letter campaign urging notifiers to review and correct their self-classification. This would include those notifiers that made obvious notification errors.

Of particular concern are group entries, which were found responsible for several cases of divergence. It is of course conceivable that some substances have been erroneously associated with a group entry in the present analysis but the level of inconsistency suggests that notifiers/registrants rely on numerical identifiers (CAS or EC number) to check whether harmonised classification and labelling applies to their substances.

An awareness raising campaign among industry would be needed. In support of registrants and notifiers, ECHA is considering the feasibility of linking individual substances belonging to group entries in the C&L Inventory. These links would be manually created, would not be exhaustive and will be provided for information only, but should assist notifiers/registrants in identifying whether their substances are covered by group entries on Annex VI.

New and amended entries on Annex VI also seem more likely to cause divergence from the harmonised classification. It is the responsibility of notifiers to keep their notifications up to date. The long lead times for changing an entry on Annex VI offer sufficient time to implement the changes. Nevertheless, ECHA will send alerts to notifiers and registrants of substances affected by newly published ATPs urging them to check and update their notifications. ECHA also informs registrants and notifiers when a public consultation on a proposal for harmonised classification and labelling on their substance is launched.

Industry associations are an important link between regulatory authorities and companies. Active participation of industry associations contributes to awareness raising among industry (registrants and notifiers) and encourages them to follow the harmonised classification and labelling. To this end, a pilot exercise in collaboration with the Commission is planned with a small subset of substances. In this pilot, all registrants and notifiers will be made aware of differences in classifications and encouraged to correct their notifications (if needed) and agree on the classification using the C&L Platform.

Manufacturers and importers of the same substance are obliged to make every effort to come to an agreement on the classification of the substance. This agreement is of particular importance to downstream users as consistency in classification and adherence to harmonised classification among their suppliers is

paramount. With the information published by this report, downstream users can apply pressure on their suppliers to discuss and agree on the classification of their substances.

4.2 PART B: SELF-CLASSIFICATIONS FOR CMR

The aim of the analysis was to identify substances present on the EU market which may possess CMR properties and therefore would require harmonised classification.

C&L Inventory notifications include both registered and non-registered substances. Registered substances are present in significant quantities on the market and are more likely to be of concern for people and the environment. The existence of REACH registration dossiers also suggests that (for full registrations at least) the data on which the classification is based is readily available to MSCAs for verification. On the other hand, substances for which a REACH registration dossier has not yet been submitted can also be of significant concern. In addition, substances which are not subject to REACH (e.g. active substances in plant protection and biocidal products) may also be of concern.

4.2.1 Follow up actions

The analysis indicates several thousand substances of potential concern, of which at least several hundred have been registered. These substances warrant further analysis to examine whether a harmonised CMR classification might be justified. Due to the relatively large pool of substances and limited resources available to Member State competent authorities and ECHA, prioritisation is needed. These substances will be prioritised based on additional properties such as registration status, types of use, exposure potential and structural similarity with other known CMR substances.

ECHA is actively working with Member State competent authorities to identify and prioritise substances of concern and conclude on appropriate risk management actions. In addition to the identification of CLH candidates, this common approach includes identification of candidates to be included on the Community rolling action plan (CoRAP) for substance evaluation and implementation of the SVHC Roadmap 2020, aimed at including all relevant substances of very high concern (SVHCs) included in the Candidate List by 2020.

The implementation of this screening approach aims to identify good candidates for authorities for the REACH and CLP processes in a manner that ensures efficiency and consistency. This approach will minimise duplication of effort and improve coordination between authorities. It will also help to improve collaborative working between authorities, whilst increasing the possibility for competency building through the joint development of the common screening approach and necessary tools.

4.3 FULL AVAILABILITY OF RESULTS

All publicly available information serving as a basis for the report is available either in this report or as downloadable annexes.

Annex I to this report lists the entries for which over five percent inconsistency with the harmonised classification was found (Table A.1), as well as all substances with registrations not following the harmonised CMR classification (Table A.2).

In a separate (downloadable) document in Excel format (Annex III to this report), all harmonised CMR substances for which a registration or notification has been received are reported. The total number of notifications and registrations and, for each substance, the number of registrations and notifications not in line with the harmonised classification are included. All substances identified as belonging to group entries are included but no manual correction of notification errors has been included.

In another separate (downloadable) document in Excel format (Annex IV), we have listed all substances where at least one notifier has indicated a CMR classification (or more stringent in the case of harmonised CMR substances) including the total number of notifications and registrations and the number of notifications and registrations with CMR classification. This will allow interested parties to repeat the analysis and apply their own prioritisation criteria.

All confidential substance identifiers have been removed from the downloadable annexes. In some cases, no substance identifier can be published for a particular substance and the substance has been removed from the annexes completely.

Annex I: Harmonised CMR substances with inconsistent notifications

Table A.1: Annex VI entries with more than five percent inconsistency among notifications, after correction for errors made during the notification process

CLH INDEX NUMBER	INTERNATIONAL CHEMICAL IDENTIFIER	EC NUMBER	CAS NUMBER	# NOTIFIERS	# INCONSISTENT NOTIFICATIONS			COMMENTS
					CARCINOGENICITY	MUTAGENICITY	REPRODUCTIVE TOXICITY	
082-001-00-6	lead compounds with the exception of those specified elsewhere in this Annex	-	-	3 617			360 (9.99)	
603-194-00-0	2-(2-aminoeth-ylamino)ethanol; (AEEA)	203-867-5	111-41-1	1 735			96 (5.53)	
603-025-00-0	tetrahydrofuran	203-726-8	109-99-9	1 531	1 250 (81.65)			

CLH INDEX NUMBER	INTERNATIONAL CHEMICAL IDENTIFIER	EC NUMBER	CAS NUMBER	# NOTIFIERS	CARCINOGENICITY	MUTAGENICITY	REPRODUCTIVE TOXICITY	COMMENTS
					# INCONSISTENT NOTIFICATIONS			
603-018-00-2	furfuryl alcohol	202-626-1	98-00-0	1 506	99 (6.57)			
616-003-00-0	acrylamide; prop-2-enamide	201-173-7	79-06-1	1 324		81 (6.12)	74 (5.59)	
028-009-00-5	nickel sulphate	232-104-9	7786-81-4	1 236	1 008 (81.55)	74 (5.59)		
607-430-00-3	BBP; benzyl butyl phthal-ate	201-622-7	85-68-7	1 156			93 (8.04)	

CLH INDEX NUMBER	INTERNATIONAL CHEMICAL IDENTIFIER	EC NUMBER	CAS NUMBER	# NOTIFIERS	CARCINOGENICITY	MUTAGENICITY	REPRODUCTIVE TOXICITY	COMMENTS
					# INCONSISTENT NOTIFICATIONS			
617-001-00-2	di-tert-butyl peroxide	203-733-6	110-05-4	1 106		899 (81.28)		ATP03
024-017-00-8	Chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex	-	-	1 033	190 (18.39)			
604-076-00-1	phenolphthalein	201-004-7	77-09-8	866		356 (41.11)	356 (41.11)	
612-251-00-9	cis-1-(3-chloroallyl)-3,5,7-triaza-1-azoniaadamantane chloride	426-020-3	51229-78-8	563			354 (62.88)	

CLH INDEX NUMBER	INTERNATIONAL CHEMICAL IDENTIFIER	EC NUMBER	CAS NUMBER	# NOTIFIERS	CARCINOGENICITY	MUTAGENICITY	REPRODUCTIVE TOXICITY	COMMENTS
					# INCONSISTENT NOTIFICATIONS			
602-109-00-4	hexabromocyclodo-decane [1];	247-148-4 [1]; 221-695-9[2]	25637-99-4[1]; 3194-55-6[2]	556			253 (45.50)	ATP03
082-010-00-5	lead chromate molybdate sulfate red; C.I. Pigment Red 104; [This substance is identified in the Colour Index by Colour Index Constitution Number, C.I. 77605.]	235-759-9	12656-85-8	541			95 (17.56)	
607-698-00-1	4-tert-butylbenzoic acid	202-696-3	98-73-7	461			156 (33.84)	ATP03

CLH INDEX NUMBER	INTERNATIONAL CHEMICAL IDENTIFIER	EC NUMBER	CAS NUMBER	# NOTIFIERS	CARCINOGENICITY	MUTAGENICITY	REPRODUCTIVE TOXICITY	COMMENTS
					# INCONSISTENT NOTIFICATIONS			
005-018-00-2	perboric acid (H3BO2(O2)), monosodium salt trihydrate; [1] perboric acid, sodium salt, tetrahydrate; [2] perboric acid (HBO(O2)), sodium salt, tetrahydrate [3] sodium peroxoborate hexahydrate; [containing < 0,1 % (w/w) of particles with an aerodynamic diameter of below 50 µm]	239-172-9 [1] 234-390-0 [2] 231-556-4 [3]	13517-20-9 [1] 37244-98-7 [2] 10486-00-7 [3]	456			153 (33.55)	
015-201-00-9	trixylyl phosphate	246-677-8	25155-23-1	454			359 (79.07)	ATP03

CLH INDEX NUMBER	INTERNATIONAL CHEMICAL IDENTIFIER	EC NUMBER	CAS NUMBER	# NOTIFIERS	CARCINOGENICITY	MUTAGENICITY	REPRODUCTIVE TOXICITY	COMMENTS
					# INCONSISTENT NOTIFICATIONS			
082-004-00-2	lead chromate	231-846-0	7758-97-6	449	94 (20.94)			
612-145-00-2	o-phenylenediamine	202-430-6	95-54-5	379		30 (7.92)		
007-014-00-6	salts of hydrazine	-	-	378	43 (11.38)			Group entry

CLH INDEX NUMBER	INTERNATIONAL CHEMICAL IDENTIFIER	EC NUMBER	CAS NUMBER	# NOTIFIERS	CARCINOGENICITY	MUTAGENICITY	REPRODUCTIVE TOXICITY	COMMENTS
					# INCONSISTENT NOTIFICATIONS			
006-076-00-1	mancozeb (ISO); manganese ethylen-ebis(dithiocarba-mate) (polymeric) complex with zinc salt	-	8018-01-7	369			29 (7.86)	

CLH INDEX NUMBER	INTERNATIONAL CHEMICAL IDENTIFIER	EC NUMBER	CAS NUMBER	# NOTIFIERS	CARCINOGENICITY	MUTAGENICITY	REPRODUCTIVE TOXICITY	COMMENTS
					# INCONSISTENT NOTIFICATIONS			
649-439-00-5	Distillates (petroleum), hydrodesulfurized light catalytic cracked; Cracked gasoil; [A complex combination of hydrocarbons obtained by treating light catalytic cracked distillates with hydrogen to convert organic sulfur to hydrogen sulfide which is removed. It consists of hydrocarbons having carbon numbers predominantly in the range of C 9 through C 25 and boiling in the range of approximately 150 o C to 400 o C (302 o F to 752 o F). It contains a relatively large proportion of bicyclic aromatic hydrocarbons.]	269-781-5	68333-25-5	359	352 (98.05)			

CLH INDEX NUMBER	INTERNATIONAL CHEMICAL IDENTIFIER	EC NUMBER	CAS NUMBER	# NOTIFIERS	CARCINOGENICITY	MUTAGENICITY	REPRODUCTIVE TOXICITY	COMMENTS
					# INCONSISTENT NOTIFICATIONS			
603-176-00-2	1,2-bis(2-methoxyethoxy) ethane; TEGDME; triethylene glycol dimethyl ether; triglyme	203-977-3	112-49-2	348			93 (26.72)	
607-037-00-7	2-ethoxyethyl acetate; ethylglycol acetate	203-839-2	111-15-9	346			29 (8.38)	
033-003-00-0	diarsenic trioxide; arsenic trioxide	215-481-4	1327-53-3	345	96 (27.83)			

CLH INDEX NUMBER	INTERNATIONAL CHEMICAL IDENTIFIER	EC NUMBER	CAS NUMBER	# NOTIFIERS	CARCINOGENICITY	MUTAGENICITY	REPRODUCTIVE TOXICITY	COMMENTS
					# INCONSISTENT NOTIFICATIONS			
082-005-00-8	lead di(acetate)	206-104-4	301-04-2	285			122 (42.81)	
028-057-00-7	dialuminium nickel tetraoxide; [1] nickel titanium trioxide; [2] nickel titanium oxide; [3] nickel divanadium hexaoxide; [4] cobalt dimolybdenum nickel octaoxide; [5] nickel zirkonium trioxide; [6] molybdenum nickel tetraoxide; [7] nickel tungsten tetraoxide; [8] olivine, nickel green; [9] lithium nickel dioxide; [10] molybdenum nickel oxide; [11]	234-454-8 [1] 234-825-4 [2] 235-752-0 [3] 257-970-5 [4] 268-169-5 [5] 274-755-1 [6] 238-034-5 [7] 238-032-4 [8] 271-112-7 [9] - [10] - [11]	12004-35-2 [1] 12035-39-1 [2] 12653-76-8 [3] 52502-12-2 [4] 68016-03-5 [5] 70692-93-2 [6] 14177-55-0 [7] 14177-51-6 [8] 68515-84-4 [9] 12031-65-1 [10] 12673-58-4 [11]	282	26 (9.22)			

CLH INDEX NUMBER	INTERNATIONAL CHEMICAL IDENTIFIER	EC NUMBER	CAS NUMBER	# NOTIFIERS	CARCINOGENICITY	MUTAGENICITY	REPRODUCTIVE TOXICITY	COMMENTS
					# INCONSISTENT NOTIFICATIONS			
612-122-00-7	hydroxylamine …%; [> 55 % in aqueous solution]	232-259-2	7803-49-8	276	44 (15.94)			
024-007-00-3	zinc chromates including zinc potassium chromate	-	-	251	37 (14.74)			Group entry
603-084-00-2	styrene oxide; (epoxyethyl)benzene; phenyloxirane	202-476-7	96-09-3	245	50 (20.41)			

CLH INDEX NUMBER	INTERNATIONAL CHEMICAL IDENTIFIER	EC NUMBER	CAS NUMBER	# NOTIFIERS	CARCINOGENICITY	MUTAGENICITY	REPRODUCTIVE TOXICITY	COMMENTS
					# INCONSISTENT NOTIFICATIONS			
606-143-00-0	abamectin (combination of avermectin B1a and avermectin B1b) (ISO) [1] avermectin B1a (purity →80 %); [2]	- [1] 265-610-3 [2]	71751-41-2 [1] 65195-55-3 [2]	245			119 (48.57)	ATP03
616-205-00-9	Metazachlor (ISO); 2-chloro-N-(2,6-dimethylphenyl)-N-(1H-pyrazol-1-yl-methyl)acetamide	266-583-0	67129-08-2	239	79 (33.05)			ATP03

CLH INDEX NUMBER	INTERNATIONAL CHEMICAL IDENTIFIER	EC NUMBER	CAS NUMBER	# NOTIFIERS	CARCINOGENICITY	MUTAGENICITY	REPRODUCTIVE TOXICITY	COMMENTS
					# INCONSISTENT NOTIFICATIONS			
028-008-00-X	, nickel dihydroxide; [1] nickel hydroxide [2]	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]	214	14 (6.54)			

CLH INDEX NUMBER	INTERNATIONAL CHEMICAL IDENTIFIER	EC NUMBER	CAS NUMBER	# NOTIFIERS	CARCINOGENICITY	MUTAGENICITY	REPRODUCTIVE TOXICITY	COMMENTS
					# INCONSISTENT NOTIFICATIONS			
028-032-00-0	bisphosphonate nickel hydrogen phosphate; [1] nickel bis(dihydrogen phosphate); [2] trinickel bis(orthophosphate); [3] dinickel diphosphate; [4] nickel bis(phosphinate); [5] nickel phosphinate; [6] phosphoric acid, calcium nickel salt; [7] diphosphoric acid, nickel(II) salt [8]	238-278-2 [1] 242-522-3 [2] 233-844-5 [3] 238-426-6 [4] 238-511-8 [5] 252-840-4 [6] - [7] - [8]	14332-34-4 [1] 18718-11-1 [2] 10381-36-9 [3] 14448-18-1 [4] 14507-36-9 [5] 36026-88-7 [6] 17169-61-8 [7] 19372-20-4 [8]	187	16 (8.56)			

CLH INDEX NUMBER	INTERNATIONAL CHEMICAL IDENTIFIER	EC NUMBER	CAS NUMBER	# NOTIFIERS	CARCINOGENICITY	MUTAGENICITY	REPRODUCTIVE TOXICITY	COMMENTS
					# INCONSISTENT NOTIFICATIONS			
028-006-00-9	nickel (II) sulfide; [1] nickel sulphide; [2] millerite [3]	240-841-2 [1] 234-349-7 [2] - [3]	16812-54-7 [1] 11113-75-0 [2] 1314-04-1 [3]	175		27 (15.43)		
609-025-00-7	dinoseb (ISO); 6-sec-butyl-2,4-di-nitrophenol	201-861-7	88-85-7	146			93 (63.70)	
015-199-00-X	tris[2-chloro-1-(chloromethyl) ethyl] phosphate	237-159-2	13674-87-8	142	33 (23.24)			ATP03

CLH INDEX NUMBER	INTERNATIONAL CHEMICAL IDENTIFIER	EC NUMBER	CAS NUMBER	# NOTIFIERS	CARCINOGENICITY	MUTAGENICITY	REPRODUCTIVE TOXICITY	COMMENTS
					# INCONSISTENT NOTIFICATIONS			
602-058-00-8	α,α -dichlorotoluene; benzylidene chloride; benzal chloride	202-709-2	98-87-3	125	64 (51.20)			
006-011-00-7	carbaryl (ISO); 1-naphthyl methylcarbamate	200-555-0	63-25-2	118	23 (19.49)			

CLH INDEX NUMBER	INTERNATIONAL CHEMICAL IDENTIFIER	EC NUMBER	CAS NUMBER	# NOTIFIERS	CARCINOGENICITY	MUTAGENICITY	REPRODUCTIVE TOXICITY	COMMENTS
					# INCONSISTENT NOTIFICATIONS			
602-042-00-0	1,2,3,4,5,6-hexa-chlorcyclohexanes with the exception of those specified elsewhere in this Annex	-	-	118	12 (10.17)			Group entry
612-099-00-3	4-methyl-m-phenyl-enediamine; 2,4-toluenediamine	202-453-1	95-80-7	118			37 (31.36)	
616-164-00-7	dimoxystrobin (ISO); (E)-2-(methoxyimi-no)-N-methyl-2-[α-(2,5-xylyloxy)-o-tolyl]acetamide	-	149961-52-4	116	23 (19.83)		23 (19.83)	

CLH INDEX NUMBER	INTERNATIONAL CHEMICAL IDENTIFIER	EC NUMBER	CAS NUMBER	# NOTIFIERS	CARCINOGENICITY	MUTAGENICITY	REPRODUCTIVE TOXICITY	COMMENTS
					# INCONSISTENT NOTIFICATIONS			
649-437-00-4	Distillates (petroleum), light hydrocracked; Cracked gasoil; [A complex combination of hydrocarbons from distillation of the products from a hydrocracking process. It consists predominantly of saturated hydrocarbons having carbon numbers predominantly in the range of C 10 through C 18 and boiling in the range of approximately 160 o C to 320 o C (320 o F to 608 o F).]	265-078-2	64741-77-1	103	47 (45.63)			
612-072-00-6	biphenyl-4-ylamine; xenylamine; 4-aminobiphenyl	202-177-1	92-67-1	93	24 (25.81)			

CLH INDEX NUMBER	INTERNATIONAL CHEMICAL IDENTIFIER	EC NUMBER	CAS NUMBER	# NOTIFIERS	CARCINOGENICITY	MUTAGENICITY	REPRODUCTIVE TOXICITY	COMMENTS
					# INCONSISTENT NOTIFICATIONS			
015-155-00-X	glufosinate ammonium (ISO); ammonium 2-amino-4- (hydroxymethylphosphinyl)butyrate	278-636-5	77182-82-2	76			4 (5.26)	
604-042-00-6	4-nitrosophenol	203-251-6	104-91-6	49		23 (46.94)		
607-330-00-X	(S)-2,3-dihydro-1H-indole-2-carboxylic acid	410-860-2	79815-20-6	39			2 (5.13)	
611-030-00-4	o-tolidine based dyes; 4,4'-diarylazo-3,3'-dimethylbiphenyl dyes, with the exception of those mentioned elsewhere in this Annex	-	-	35	12 (34.29)			Group entry

CLH INDEX NUMBER	INTERNATIONAL CHEMICAL IDENTIFIER	EC NUMBER	CAS NUMBER	# NOTIFIERS	CARCINOGENICITY	MUTAGENICITY	REPRODUCTIVE TOXICITY	COMMENTS
					# INCONSISTENT NOTIFICATIONS			
612-280-00-7	3-amino-9-ethyl carbazole; 9-ethylcarba-zol-3-ylamine	205-057-7	132-32-1	34	3 (8.82)			
612-281-00-2	leucomalachite green; N,N,N',N'-te-tramethyl-4,4'-ben-zylidenedianiline	204-961-9	129-73-7	34	33 (97.06)	34 ()		ATP03
611-029-00-9	o-dianisidine based azo dyes; 4,4'-dia-rylazo-3,3'-dime-thoxybiphenyl dyes with the exception of those mentioned elsewhere in this Annex	-	-	29	6 (20.68)			Group entry

CLH INDEX NUMBER	INTERNATIONAL CHEMICAL IDENTIFIER	EC NUMBER	CAS NUMBER	# NOTIFIERS	CARCINOGENICITY	MUTAGENICITY	REPRODUCTIVE TOXICITY	COMMENTS
					# INCONSISTENT NOTIFICATIONS			
612-241-00-4	piperazine hydrochloride; [1] piperazine dihydrochloride; [2] piperazine phosphate [3]	228-042-7 [1] 205-551-2 [2] 217-775-8 [3]	6094-40-2 [1] 142-64-3 [2] 1951-97-9 [3]	32			2 (6.25)	
015-022-00-6	phosphamidon (ISO); 2-chloro-2-diethylcarbamoyl-1- methylvinyl dimethyl phosphate	236-116-5	13171-21-6	30		4 (13.33)		
612-250-00-3	chloro-N,N-dimethylformiminium chloride	425-970-6	3724-43-4	30			24 (80.00)	
604-082-00-4	2-chloro-6-fluoro-phenol	433-890-8	2040-90-6	29		25 (86.21)	25 (86.21)	

CLH INDEX NUMBER	INTERNATIONAL CHEMICAL IDENTIFIER	EC NUMBER	CAS NUMBER	# NOTIFIERS	CARCINOGENICITY	MUTAGENICITY	REPRODUCTIVE TOXICITY	COMMENTS
					# INCONSISTENT NOTIFICATIONS			
604-079-00-8	4,4'-(1,3-phenylene-bis(1-methylethylidene))bis-phenol	428-970-4	13595-25-0	28			23 (82.14)	
015-200-00-3	indium phosphide	244-959-5	22398-80-7	27			3 (11.11)	ATP03
612-245-00-6	2-ethylphenylhydrazine hydrochloride	421-460-2	19398-06-2	25	25 (100.00)			
613-016-00-3	Fuberidazole (ISO); 2-(2-furyl)-1H-benzimidazole	223-404-0	3878-19-1	24	23 (95.83)			ATP03
606-131-00-5	cyclic 3-(1,2-ethanediylacetale)-estra-5(10),9(11)-diene-3,17-dione	427-230-8	5571-36-8	17			3 (17.65)	

CLH INDEX NUMBER	INTERNATIONAL CHEMICAL IDENTIFIER	EC NUMBER	CAS NUMBER	# NOTIFIERS	CARCINOGENICITY	MUTAGENICITY	REPRODUCTIVE TOXICITY	COMMENTS
					# INCONSISTENT NOTIFICATIONS			
607-667-00-2	chloro-1-ethylcy-clohexyl carbonate	444-950-8	99464-83-2	12		1 (8.33)		
604-028-00-X	4-amino-3-fluoro-phenol	402-230-0	399-95-1	8	3 (37.50)			
607-377-00-6	trans-4-cyclohex-yl-L-proline mono-hydrochloride	419-160-1	90657-55-9	8			1 (12.50)	
612-244-00-0	3-(piperaz-in-1-yl)-benzo[d] isothiazole hydro-chloride	421-310-6	87691-88-1	8			1 (12.50)	
005-010-00-9	N,N-dimethylanilin-ium tetrakis(penta-fluorophenyl)borate	422-050-6	118612-00-3	3	1 (33.33)			

CLH INDEX NUMBER	INTERNATIONAL CHEMICAL IDENTIFIER	EC NUMBER	CAS NUMBER	# NOTIFIERS	CARCINOGENICITY	MUTAGENICITY	REPRODUCTIVE TOXICITY	COMMENTS
					# INCONSISTENT NOTIFICATIONS			
028-019-00-X	nickel bis(tetrafluoroborate)	238-753-4	14708-14-6	3	1 (33.33)		1 (33.33)	
607-518-00-1	3-oxoanrost-4-ene-17β-carboxylic acid	414-990-0	302-97-6	3			3 (100.00)	

CLH INDEX NUMBER	INTERNATIONAL CHEMICAL IDENTIFIER	EC NUMBER	CAS NUMBER	# NOTIFIERS	CARCINOGENICITY	MUTAGENICITY	REPRODUCTIVE TOXICITY	COMMENTS
					# INCONSISTENT NOTIFICATIONS			
649-055-00-8	Distillates (petroleum), acid-treated light naphthenic; Unrefined or mildly refined baseoil; [A complex combination of hydrocarbons obtained as a raffinate from a sulfuric acid treating process. It consists of hydrocarbons having carbon numbers predominantly in the range of C 15 through C 30 and produces a finished oil with a viscosity of less than 100 SUS at 100 o F (19cSt at 40 o C). It contains relatively few normal paraffins.]	265-118-9	64742-19-4	3	1 (33.33)			
612-266-00-0	3-chloro-4-(3-fluorobenzyloxy)aniline	445-590-4	202197-26-0	2		1 (50.00)		
616-180-00-4	N,N-(dimethylamino)thioacetamide hydrochloride	435-470-1	27366-72-9	1			1 (100.00)	

Table A.2: CMR substances with registrations not following the harmonised CMR classification

CLH INDEX NUMBER	SUBSTANCE NAME	EC NUMBER	CAS NUMBER	CMR CLASSIFICATION	# REGISTRATIONS	# INCONSISTENT REGISTRATIONS
602-009-00-0	chloroethane	200-830-5	75-00-3	Carc. 2 – H351	7	1
612-137-00-9	4-chloroaniline	203-401-0	106-47-8	Carc. 1B – H350	8	1
612-207-00-9	4-ethoxyaniline;.p-phenetidine	205-855-5	156-43-4	Muta. 2 – H341	3	1
028-054-00-0	nickel(II) hydrogen citrate	242-533-3	18721-51-2	Repr. 1B – H360	6	6
082-001-00-6	Matte lead	282-356-9	84195-51-7	Repr. 1A – H360	16	16
082-001-00-6	Slags lead-zinc smelting	297-907-9	93763-87-2	Repr. 1A – H360	10	10
082-001-00-6	Lead bullion	308-011-5	97808-88-3	Repr. 1A – H360	22	22
602-019-00-5	1-bromopropane;n-propyl bromide	203-445-0	106-94-5	Repr. 2 – H361	8	1
607-377-00-6	trans.-4-cyclohexyl-L-proline monohydrochloride	419-160-1		Repr. 2 – H361	2	1
612-244-00-0	3-(piperazin-1-yl)-benzo[d] isothiazole hydrochloride	421-310-6		Repr. 1B – H360	1	1


ECHA
European Chemicals Agency
Euroopan kemikaalivirasto
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Annex II: Further details on methodology and limitations

STARTING POOL OF SUBSTANCES AND IMPURITIES, ADDITIVES AND CONSTITUENTS

Starting pool of substances

The starting pool of substances for both analyses was all substances for which at least one notification had been submitted to the C&L Inventory by 19 May 2014. As each REACH registration is also a C&L notification, all substances registered by that date were also included. At that time, the database contained notifications for about 125 000 substances. Detailed chemical structures were not used during the analysis and comparison was done based on names (IUPAC names, EC names and CAS names) or numerical identifiers (EC/CAS numbers). For each notification and each substance composition within a notification, information on impurities, additives and constituents was also used.

Harmonised impurities, additives and constituents

For the analysis reported in part B, considerable effort was spent in eliminating those CMR classifications which arose from the presence of impurities, additives and constituents. For each notification of a substance classifying as CMR the following was done:

Each impurity, additive or constituent reported in the notification/registration was examined to see if it fell under a CMR entry on Annex VI and if it was reported as being present at levels at or above the generic concentration limits for the harmonised CMR classification. If specific concentration limits applied to the entry, the reported levels of the impurity, additive or constituent were compared with that. If the impurity, additive or constituent were found to be above the generic or specific concentration limits, the reported classification was compared with the harmonised classification. If the reported classification was the same or less stringent than the harmonised classification, the notification was discarded from further analysis. Only in cases where the reported classification was more stringent than the harmonised classification of the impurity was the notification carried forward.

Notifiers and registrants can indicate whether an impurity, additive or constituent is relevant for the classification by ticking the appropriate tick-box. This information was not used for the exclusion described above, as it has been applied somewhat inconsistently and does not indicate how the relevant substance impacts the classification. It should be noted that the approach here will result in some substances being excluded based on the presence of CMR impurities but which nevertheless have CMR properties themselves.

The analysis reported in part A did not take impurities, additives or constituents into account.

REPORTED CLASSIFICATION AND NUMBER OF NOTIFIERS/REGISTRANTS

Determination of reported classification

In principle, it should be relatively straightforward to determine the CMR classification reported in each notification/registration. This is the case for the majority of notifications but some contain inconsistencies in the reported classification, mainly between the hazard category and the corresponding hazard statement (e.g Carc- 1B – H351 instead of Carc. 1B – H350). To account for these inconsistencies, the following approach was used to determine whether a particular notification/registration classification block classified a substance as CMR, and if so then in what category (as shown for carcinogenicity):

- Step 1: if the hazard category is Carc. 1A then the self-classification is set to Carc. 1A and the

algorithm stops, otherwise moves to step 2;

- Step 2: if the hazard category is Carc. 1B then the self-classification is set to Carc. 1B and the algorithm stops, otherwise moves to step 3;
- Step 3: if the hazard statement is H350 ("May cause cancer"; this code applies to Carc. 1A/B) the self-classification is set to Carc. 1A and the algorithm stops, otherwise moves to step 4;
- Step 4: if the hazard category is Carc. 2 then the self-classification is set to Carc. 2 and the algorithm stops, otherwise moves to step 5;
- Step 5: if the hazard statement is H351 ("Suspected of causing cancer" "; this code applies to Carc. 2) then the self-classification is set to Carc. 2 and the algorithm stops, otherwise moves to step 6;
- Step 6: the notification/registration is marked as not containing self-classification for carcinogenicity.

This approach means that when the hazard category code and the hazard statement code do not match, it is assumed that the notifier/registrant applies the more stringent classification.

For example, if the classification reported is Carc. 1B – H351, the classification is assumed to be Carc. 1B. If the reported classification is Carc. 2 – H350, the classification is assumed to be Carc. 1A.

This approach would lead to fewer false positives when analysing inconsistency, but might result in an overestimation of potentially new carcinogens, although the number of such discrepancies is not sufficient to significantly change the results. A similar procedure was followed for mutagenicity and reproductive toxicity. To simplify the automatic analysis, the labelling section was not taken into account when determining the classification. However, during subsequent examination, it became apparent that some notifiers only filled in the labelling section of their notifications. When these errors were common, some manual verification and correction was done to account for this. Not all notifications were verified but the remaining errors, if any, do not impact the outcome to a detectable degree.

Notifiers and registrants can also submit multiple classifications for the same substance (for instance, when different impurity profiles impact the classification). In these cases, the most stringent classification which could not be explained by the presence of impurities or additives was used for further analysis.

While many registration dossiers contain classification information in the old classification system under the Dangerous Substances Directive (DSD), notifications do not. This information was not used for analysis.

Counting the number of notifications/registrations

Substances can be notified to the C&L Inventory in several different ways. A notification file can be submitted by a single company or legal entity but it can also be submitted on behalf of a group of companies. In addition, REACH registration dossiers (which are also C&L notifications) can be submitted by one company (individual registration) or by several companies (joint submission). Each member of a joint submission can furthermore opt out of a classification submitted by the lead registrant and submit their own.

The principle behind the reporting for both parts of the analysis is one company = one notification. If the notification comes from a lead registration, the number of notifications is counted as the number of members in the joint submission that are covered by the classification of the lead registrant. The same can be said about the notifications submitted on behalf of groups. The notifications submitted by individual companies and the opt-out classifications in the registrations are counted individually.

ANNEX VI TO CLP: GROUP ENTRIES AND CONDITIONS

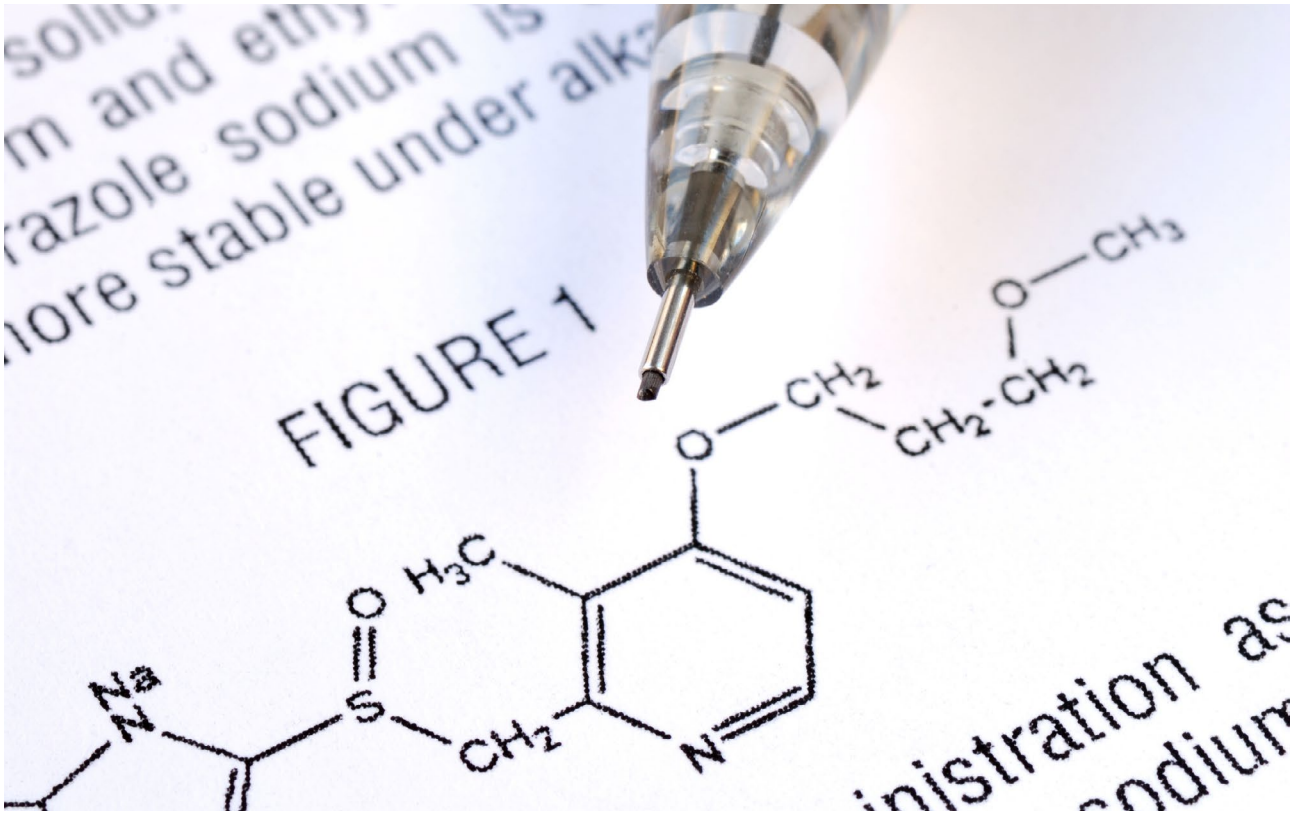
Annex VI to CLP is updated regularly with new and amended entries through Adaptations to Technical Progress (ATP). During the analysis, Annex VI and all ATPs up to and including the third ATP (entered into force on 31 July 2012 and became legally binding from 1 December 2013) was used.

In total, 1 312 entries for substances classified as CMR in categories 1A, 1B or 2 were examined. Subsequently, the fifth and sixth ATPs have been published, although not yet fully legally binding, amending and adding some entries. These entries were not used in the automatic IT-based analysis but during manual verification it was sometimes apparent that discrepancies in reported classification or potential CMR candidates were a result of notifiers/registrants already applying changes introduced by these ATPs. These substances were generally removed from the more detailed reporting.

Group entries

Entries on Annex VI usually cover one single substance or a defined group of substances. The EC and CAS numbers of the substances are included in the entry and the identification of whether a harmonised entry applies to a substance is straightforward. However, there are other, less detailed, entries that cover a (potentially infinite) group of substances that all share the same characteristics, substructure or toxicological moiety. An example of this is the entry "Arsenic acid and its salts" (Annex VI Index number 033-005-00-1) which not only covers arsenic acid but also all salts of arsenic acid.

These so-called group entries are challenging to analyse. Currently, on Annex VI (as updated with the third ATP) there are 89 group entries, 22 of which contain classifications as CMR1A/1B/2. A substantial effort has been made to identify substances belonging to these 22 entries. A manual search was conducted in different chemical databases using substructures where possible. In addition, efforts made by national authorities (such as those documented in the Swedish H-Class database) were collected. This work was used to generate input files of substance names and numerical identifiers that were later used to screen the C&L Inventory database. It should be noted that this process is ongoing and there will be several substances belonging to group entries which have not yet been identified. Likewise, a small number substances may have been erroneously associated with a given group entry.



Conditional entries

In addition to so-called group entries, other elements of Annex VI entries make it challenging to determine whether a substance falls under an entry or not. Under certain conditions, such as state/form (e.g. length of fibres) or absence of impurity/constituent above a certain concentration (e.g benzene), an entry may not apply to a given substance. These conditions are usually either stipulated with a note or in the name of the entry.

Verifying whether or not the conditions are met and the entry applies to a given notification/registration of a substance is challenging and time-consuming. For the analysis on whether notifiers or registrants had applied the harmonised classification, the conditional entries were not analysed. This means that the developed approach is underestimating the number of notifications and registrations which are inconsistent with the harmonised classification, but it was not technically possible to automatically examine the application of notes with the current level of information in the registration dossiers and notifications.

When analysing the presence of impurities or additives in the analysis reported in part B, the conditional entries were handled somewhat differently. There, it was assumed that the conditional classification always applied. This means that the algorithm was conservative in excluding notifications based on the presence of harmonised constituents/impurities/additives, which was considered necessary to reduce the number of false positives.

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