EU and US Regulatory Approaches to Information on Chemicals in Products: Implications for Consumers

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Information dissemination across the supply chain to consumers about chemicals’ hazardous properties and presence in consumer products has been recognized as insufficient to improve to enable both producers and end-users to avoid hazardous chemicals and to manage risks to human health and the environment. A comparative analysis of the information requirements in four EU legislations (the CLP, the Cosmetics regulation, REACH, and the Toys Safety Directive) and three US legislations (California’s Proposition 65 and Senate Bill 509, and the national TSCA) was conducted with the aim of studying to what extent existing regulatory information approaches require information to be disseminated to consumers. In general, the European legislations address and promote consumers’ access to information on chemicals in products more comprehensively than the American legislations, but the amount and type of information required to be disseminated to consumers varies widely. These differences include which chemicals are prioritised, if the chemical is used in a mixture or an article, what information dissemination strategies are used, and who is responsible for consumers accessing the information. It is recommended that chemical information policies should, at minimum, require chemical suppliers to inform consumers of hazardous chemicals present in their products and, if possible, recommend risk management measures to ensure a safe use of consumer products.

I. Introduction

Together, European and American companies produce almost half of the world’s chemical supply (European Union (EU): 29%; United States (US): 19%).

In 2010, approximately 143,000 chemical substances were pre-registered under the EU chemical legislation REACH (Registration, Evaluation, Authorization, and restriction of CHemicals)³. The US alone produces or imports over 18.2 billion kilos of chemicals daily⁴ and has over 80,000 chemicals on the market⁵.

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An important source of human exposure to many of these chemicals is the incorporation of chemicals in consumer products. Consumers of all ages are continuously exposed to chemicals in mixtures (e.g., cleaning agents, paint and cosmetics) and articles (e.g., clothes, electronics and toys). A recent study found that almost all plastic consumer articles sampled leached estrogen-mimicking chemicals. These chemicals are also among the over 200 chemicals identified by the US Centers for Disease Control and Prevention for its 2009 national biomonitoring study. These and other biomonitoring data show that people, including particularly vulnerable subpopulations like pregnant women, are exposed to multiple classes of chemicals and multiple chemicals within each class, and maintain levels of these chemicals in their blood.

However, a data gap exists with regard to how and which chemicals are emitted from consumer products. Information about the chemical content of articles is rarely available to regulators, professional buyers, or consumers. Hence, knowledge about the hazards and risks associated with the use of chemicals in consumer articles is currently very limited. The chemical safety assessment (CSA) that is required as part of the registration dossier under REACH for hazardous chemicals produced or imported in 10 tonnes or more annually will generate such information for certain uses (REACH, Article 14 and Annex I)\(^2\). Depending on how this requirement is being implemented, the CSAs have the potential to be important in contributing to understanding the complex risk profiles of hazardous chemicals in different consumer products.

While some chemical sectors are relatively well-regulated, regulations of industrial chemicals, and in particular the use of chemicals in consumer products, have been criticized for not being protective enough with regard to human health and the environment. Given ongoing research and policy discussions about the potential effects of combined exposures to different chemicals ("cocktails"), as well as consistent exposure to low doses of ubiquitous chemicals, such as chemicals with hormone-disrupting properties, a more holistic perspective for the entire chemical sector has been a topic of interest in Europe and worldwide. Denmark recently decided to introduce a national ban of four phthalates (DEHP, DBP, DIBP and BBP) from use in consumer products due to their endocrine-disrupting properties, and potential for synergistic effects. The increased awareness of combined exposures and mixture effects subsequently also needs to be reflected in the information provided to consumers.

In the increasingly global market, several bodies, including the Royal Commission on Environment and Pollution and United Nations’ Strategic Approach to International Chemicals Management (SA-

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15 European Commission (EC), Communication from the Commission – SG(2012) D/5564. Title: Notice banning the import and sale of products intended for indoor use which contain the phthalates DEHP, DBP, BBP and DIPB, and products which contain these substances in parts of the products which may come into contact with skin or mucous membranes, 2012, available on the Internet at <http://ec.europa.eu/environment/tris/pisa/app/search/index.cfm?funaction=pisa_no_title&view=1&year=2012&num=124&lang=EN> (last accessed on 28 October 2012).

ICM), have called for innovative policy solutions that increase the public’s access to information about chemicals in products. The overall aim of SAICM is to achieve the goal agreed upon in Johannesburg in 2002 at the World Summit on Sustainable Development that by 2020 chemicals should be “used and produced in ways that lead to minimization of significant adverse effects of human health and the environment”. An important step towards this goal is that all actors, including consumers, have increased access to information on chemicals in products throughout their entire life cycle, as outlined by Objective 15 of the SAICM Overarching Policy Strategy. The outcome of this work is, besides identifying information needs and gaps, to propose an information system or framework of systems that ensures global harmonization of information dissemination and access for chemicals in products. Consumers’ right to information about the chemical constituents of products and their properties is supported by the UN international consumer rights, as adopted in 1985 by the United Nations General Assembly. These rights include the right to safety of products, the right to be informed to enable more-knowledge-based product choices, the right to consumer education and the right to a healthy environment.

Information dissemination requirements for consumer products vary widely by country and region, by type of chemical, and by type of product. How regulatory actors in government, industry, and civil society interpret and implement these requirements varies as well. Although some previous analyses have compared the major pieces of EU and US legislation, other analyses have compared legislations within a particular country or region, no analysis of several European and American chemical legislations that specifically address information requirements for consumer products has, to the authors’ knowledge, yet been published in the scientific literature. This work is a contribution to the international recognition that the dissemination of information on chemicals in products to consumers needs to be improved.

Aim

The aim of the present study is to analyse to what extent EU and US chemical legislations provide information on chemicals’ hazardous properties and of their presence in consumer products to consumers. The aim is further to make general recommendations on how chemical information policies can more effectively address the international challenge of responsible management of chemicals in consumer products.

II. Methods

The legislations analysed were selected with the aim of covering (1) the main EU and US industrial chemical legislations, and (2) industrial chemical leg-
islations that include any approach to information dissemination of chemicals in consumer products to reach to consumers. No limitations were made regarding the scope of the legislations; thus the selected legislations target different types of chemicals, chemical mixtures and/or articles. The reason for this is that the information requirements that are currently legally binding for one products category could be as reasonable to apply to other categories of products, thus adding value to the analysis. Seven legislations were ultimately selected for the analysis: four EU acts (the Regulation on classification, labelling and packaging of substances and mixtures (CLP), the Cosmetic Products regulation, REACH, and the Toys Safety Directive) and three US acts (Proposition 65, Senate Bill 509 (SB 509), and the Toxic Substances Control Act (TSCA)). These are further described in section III.

Other legislations related to consumer product safety exist, including the US 2008 Consumer Product Safety Improvement Act, which regulates levels of some hazardous chemicals in children’s toys; the US 1972 Consumer Product Safety Act, which established an infrastructure for promoting safety in consumer products; and the EU Restriction of Hazardous Substances (RoHS) Directive and the Waste Electrical and Electronic Equipment (WEEE) Directive, which address chemicals in electrical and electronic products. However, as the requirements to ensure safe use of products under these legislations are mainly directed towards work within the supply chain or by external stakeholders, and less on informing consumers specifically on chemical properties and contents in products to enable safe use, they are not discussed in further depth in this paper. Furthermore, only passed legislations were included in the analysis, thus excluding bills under consideration, e.g. the Safe Chemicals Act of 2011, which is being proposed as a law for addressing problems identified with TSCA, and the Safe Cosmetics Act of 2010. The two main current laws in the US pertaining to cosmetic products, although not exclusively; the Federal Food, Drug, and Cosmetic Act (FD&C Act) and the Fair Packaging and Labelling Act (FPLA), are less comprehensive and specific in requirements compared to the EU’s Cosmetic Products regulation.

In this paper, product is used when referring to both mixtures and articles simultaneously. A mixture is a mixture or solution composed of two or more substances (REACH, Article 3.2), i.e. a chemical product such as paint. An article, as defined by REACH, is “an object which during production is given a special shape, surface or design which determines its function to a greater degree than does its chemical composition” (REACH, Article 3.3), such as a coat or a computer.

This paper takes a public health approach to policy analysis, and the information requirements pertaining to hazardous chemicals in products are analysed from a toxicological risk management perspective. Furthermore, the emphasis is on the practical implications the information requirements will have for citizens, i.e. what information is provided. This differs from comparative law in that the present comparison does not analyse the legal texts in the context of when they were developed and passed. The comparative approach used in the present paper is based on the methodology used in previous research in the field of regulatory risk assessment10.

III. Legislative information requirements

Below, the information requirements of the EU and US legislations included in the analysis are described.

European Union

– The Regulation on classification, labelling and packaging of substances and mixtures (CLP) (Regulation 1272/2008/EC)31 came into force in 2009 and applies to, in principle, all substances and mixtures and certain specific articles supplied in the EU. CLP is the EU implementation of the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS), which aims to implement the same criteria worldwide for the classification of chemicals by types of hazards and how to communicate these hazards

In the US, the implementation of the GHS to harmonize the several existing classification and labelling systems are in various stages of planning and implementation for the different systems. CLP requires suppliers to classify and label their substances and mixtures according to physical, health and environmental hazard criteria before placing them on the market. Product labels must include the supplier’s name and contact information, the quantity of the substance/mixture in chemical products, product identifiers, and hazard pictograms and/or statements, signal words, and precautionary statements. There are also requirements about how large the label and pictograms must be. The obligation to inform users applies irrespective of the intended use of the product and the risks associated with a particular use.

- **The Cosmetic Products regulation** (Regulation 1223/2009/EC) came into force in 2009. It requires companies to declare a cosmetic product’s nominal content, given by weight or volume, the chemical ingredients of the products, and beginning in 2013, any ingredient present in nanomaterial form must be indicated. Presence of perfume of aromatic compositions only needs to be referred to as “perfume” or “aroma”, except for certain such substances which must be mentioned by their chemical name in the ingredient’s list. The function and the date of the minimum durability of the product must also be stated. In addition, companies shall provide precautionary warnings and/or use instructions for consumers when required in Annexes III to VI, which list restricted substances, and allowed colorants, preservatives and UV filters, respectively. The name and contact information of the entity marketing the cosmetic product must also be provided with the product (Article 19).

- **The Registration, Evaluation, Authorization, and restriction of Chemicals (REACH)** (Regulation 1907/2006/EC) came into force in 2007 and regulates industrial chemicals manufactured in or imported to the EU at more than one ton per year. Information about the identity of the manufacturer/importer, substance identity, toxic and ecotoxic properties, classification and labelling of the substance, intended uses and guidance on safe use that are generally required to be submitted in the registration dossiers should be made publicly available through an online database on the European Chemicals Agency (ECHA) website. The data requirements increase with increasing production or imported volume (Article 10 and Annexes VI–XI). The information requirements specifically for articles pertain to the so-called substances of very high concern (SVHCs). SVHCs are identified based on their classification as CMR category 1 or 2, PBT, vBvP, and/or for being of “equivalent level of concern” (Article 57). There are currently 84 SVHCs on the REACH Candidate list (Annex XIV). Professional users must be notified if SVHCs are present at more than 0.1% by weight in a finished article, and consumers have the right to this information within 45 days upon request (Article 33).

- **The Toys Safety Directive** (Directive 2009/48/EC) passed in 2009, regulates “products designed or intended, whether or not exclusively, for use in play by children under 14 years of age” (Article 2). The toy should bear an identification element, e.g. a batch number, and contact information to the manufacturer or importer (Articles 4 and 6). It requires providing the names of 11 specified allergenic substances at concentrations exceeding 100 mg/kg in the toy or components thereof (Annex II). It also recommends precautionary measures for consumer use. When considered appropriate for safe use, warnings that specify user limitations in accordance with Annex V of the Directive should accompany the toy (Article 11). Certain categories of toys, e.g. toys intended for use by children under 36 months and chemical toys, are required to bear specific warnings, which at least should include the minimum or maximum age of...
the user. For example, chemical toy kits must state: “Not suitable for children under [age determined by manufacturer] years. For use under adult supervision.” These warnings should be clearly visible, easily legible and understandable (Article 11; Part B of Annex V). Manufacturers and importers must ensure that instructions and safety information accompanying the toy is in a language easily understood by the consumer (Articles 4 and 6).

United States

- **Proposition 65**, or The Safe Drinking Water and Toxic Enforcement Act[^38^], was passed in California in 1986. It requires businesses (small businesses with less than 10 employees are exempted) to provide generic consumer warning labels for products and areas to indicate exposure to carcinogenic, teratogenic and/or reprotoxic chemicals listed by the Office of Environmental Health Hazard Assessment. The list currently consists of about 800 chemicals. Warning labels are required when exposure of any of the listed substances causes a significant risk of harm. Thus, the warning requirement is not triggered merely by the fact that a listed chemical is present in a product. Labels are of the form: “WARNING: This product contains a chemical known to the State of California to cause cancer / birth defects or other reproductive harm.”

- **Senate Bill 509 (SB 509)**[^39^] was passed in California in 2008. SB 509 constitutes, together with AB 1879: Hazardous Materials and Toxic Substances Evaluation and Regulation, two parts that have become statues of the six-part California Green Chemistry Initiative. The SB 509 legislation requires the California Office of Environmental Health Hazard Assessment to create a “Toxics Information Clearinghouse” with the aim of providing information on hazardous traits, toxicological and environmental endpoints, and other relevant data to the public, businesses and regulators. Existing such data of chemicals and materials in use in California will be gathered and evaluated by the government before they are made available for public access via an online portal. This requirement took effect on January 19, 2012.

- **The Toxic Substances Control Act (TSCA)**[^40^], passed in 1976, applies only to “new chemicals” that have been introduced to the market after 1976. For chemicals introduced to the market pre-1976, no information is required unless the government has substantial evidence of potential risk. For post-1976 chemicals, manufacturers negotiate with the government what information is required.

IV. Results

The type of information required by the selected EU and US legislations, how that information is disseminated, and who is responsible for consumers’ access to the information differs substantially (Table 1). These differences may be explained by the differences in aim and scope of the legislations, but also of the context in which they were developed. However, as noted in section II, this comparative analysis is not concerned with the latter, but instead with the information actually being disseminated to the consumer. All of the legislations analysed include information dissemination requirements where the primary recipient of certain information is the consumer, with TSCA being the sole exception. For TSCA, the primary information recipient is the US government. However, the other legislations also include information dissemination requirements where the primary recipients of information are different supply chain actors. In general, much less information is required to be provided to the consumer than to actors within the supply chain. The legislations have differing levels of specificity as to what information is required to be available to the consumer. For example, articles 118 and 119 in REACH outline that certain information, such as the chemical’s EC number, must be made publicly available, whereas other information, such as quantity produced, can be claimed as confidential business information. On the other hand, Proposition 65 lists examples of ways to provide warnings that people may be exposed to chemicals identified by the state of California as causing cancer or reproductive toxicity, including labels, notices in the media, and mailings directly to consumers.


Table 1: The EU and US legal requirements concerning information on chemicals in products to consumers.

<table>
<thead>
<tr>
<th>Legislation</th>
<th>Information required to be disseminated to consumers</th>
<th>Information format</th>
<th>Responsibility for access to information</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLP (EU)</td>
<td>Hazard and risk &amp; Risk Management Measures</td>
<td>Safety phrases that specify how to protect health and the environment &amp; Hazard pictograms, signal words, hazard and safety statements</td>
<td>Suppliers, including manufacturers, importers, downstream users and distributors</td>
</tr>
<tr>
<td>Cosmetics regulation (EU)</td>
<td>Information concerning conditions of use and warnings include notifying the user that the contents of the product may cause allergic reactions and sensitization, and specifying presence of certain harmful substances</td>
<td>Precautionary measures for certain restricted substances, allowed colorants, preservatives and UV filters</td>
<td>Manufacturers, importers, and distributors</td>
</tr>
<tr>
<td>REACH (EU)</td>
<td>Presence of SVHCs in articles</td>
<td>-</td>
<td>Upon request by consumer</td>
</tr>
<tr>
<td></td>
<td>Information in registration dossiers</td>
<td></td>
<td>Online database</td>
</tr>
<tr>
<td>Toys Safety Directive (EU)</td>
<td>Presence of 11 allergic substances exceeding a certain concentration limit</td>
<td>Certain categories of toys are required to bear specific warnings, including at least the minimum or maximum age of the user</td>
<td>Labels and/or written use instructions on or accompanying the toy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Manufacturers, importers, and distributors</td>
</tr>
<tr>
<td>Prop.65 (CA,US)</td>
<td>Exposure to carcino-teratogenic and reprotoxic chemicals posing a significant risk</td>
<td>-</td>
<td>Warning labels on products and areas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Businesses with more than 10 employees</td>
</tr>
<tr>
<td>SB509 (CA, US)</td>
<td>Hazardous properties of chemicals and materials</td>
<td>-</td>
<td>Online database</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Consumers</td>
</tr>
<tr>
<td>TSCA (US)</td>
<td>-</td>
<td>-</td>
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</tr>
</tbody>
</table>

The Cosmetic Products regulation and the Toys Safety Directive both require notifying the consumer of the presence of certain identified allergenic or sensitizing substances. The information requirement connected to the SVHCs under REACH has a broader scope with regard to the type of chemicals targeted. However, the consumers are only informed of the presence of SVHCs in articles upon request. CLP aims to ensure that all substances and mixtures that have been classified as hazardous are labelled and communicated accordingly. All EU legislations, except REACH, require to different extents recommended risk management measures (RMMs) to be provided to the consumer. The RMMs provide the users with information on what actions to take to avoid negative effects on human health or the environment.

For the US legislations investigated, the warning labels under Proposition 65 are triggered by informa-
tion that there is a significant risk to human health associated with the use of a listed substance, while SB509 aims to provide information on hazardous properties of chemicals for which data already exist. None of the analysed US legislation explicitly includes any RMM requirements to provide consumers with information on how to protect health or the environment.

Information dissemination strategies vary widely, from hazard pictograms and warning labels to online databases, between the legislations in both Europe and the US. REACH and SB 509 have in common disseminating information to the public via web-based databases, and thereby making the consumer responsible for accessing the information.

V. Discussion

In this section, the identified patterns are based on the comparative analysis of the legislations included in this paper, thus acknowledging the limitations inherent to the scope of the study.

1. Chemical application

REACH considers substances, mixtures and articles, whereas TSCA only, in a direct manner, regulates substances as such. REACH requires more information for chemical substances and mixtures than for chemicals incorporated in articles. Similarly, the mixture-targeting Cosmetic Products regulation requires more information with regard to chemical content and hazard and risk to be disseminated to consumers than the article-regulating Toys Safety Directive. This may be because diffuse emissions of chemicals from articles have only recently been recognized as a potential human health and environmental concern, and due to the complex nature of articles, i.e. a large number of diverse and often complex items. While REACH has the minimum requirement that the supplier must name any SVHC in their product(s) to the professional user and, if requested, to the consumer, the Cosmetics regulation requires that clearly stating all ingredients, except for fragrances, of the mixture, and for restricted substances, allowed colorants, preservatives and UV filters also providing associated use instructions and warnings directly to the consumers. CLP’s information requirements almost exclusively apply to substances and mixtures. SB509’s legislative language has a broader scope; it considers chemicals independent of whether or not they are present in consumer products.

2. Substance priority setting

The seven legislations prioritise chemicals for information dissemination based on a number of different criteria. These include volume thresholds, time at which they were introduced to the market place, hazard classifications, and identification of vulnerable target populations, how people are exposed, if information currently exists, and full risk characterizations.

REACH requires more toxicological and ecotoxicological hazard and risk data for chemicals manufactured or imported at higher volumes than lower volumes. REACH is the main driving force for generation of data about the properties of industrial chemicals in the EU, but the required data will only be sufficient for hazard (and subsequently risk) assessment of high volume chemicals according to the CLP criteria. In comparison, TSCA requires information for all chemicals new (post-1976) to the marketplace regardless of volume. However, new chemicals represent a very small share (<1 %) of the market.

The legislations also have different points of focus concerning the hazard-classified substances. California’s Proposition 65 focuses exclusively on carcinogens, teratogens and reprotoxicants. The EU’s Toys Safety Directive and Cosmetic Products regulation are focusing on allergenic substances and carcinogens, mutagens and reprotoxicants (CMRs), restricting the use of almost all CMR-classified substances. On the other hand, REACH-required consumer information is mainly associated with the SVHCs, which, besides CMRs, can include persistent, bioaccumulative, and toxic (PBT) substances, very persistent and very bioaccumulative (vPvB) substances, and other substances identified as being of “equivalent level of concern”, e.g. hormone disrupting chemicals. The REACH process for identifying SVHCs and including them on the REACH candidate list (currently at

41 Christina Rudén and Sven Ove Hansson, “Registration, Evaluation, and Authorization of Chemicals (REACH) is but the first step – how far will it take us? Six further steps to improve the European chemicals legislation”, 118(1) Environmental Health Perspectives (2010), pp. 6 et seqq., at p. 9.

84 SVHCs) is more complex and time-consuming than the approach used, e.g. under the Toys Safety Directive and Cosmetic Products regulation, where all CMR-classified substances (the EU’s Dangerous Substances Directive’s Annex I lists over 900 CMRs) become regulated without requiring case-to-case evaluations before inclusion. SB509 and CLP also have an alternate point of focus than REACH, under which data generation and identification of hazardous substances are parallel processes: they cover those substances for which hazard data already exist.

Which chemicals are targeted for information requirements also depends on the type of product in which they are used: chemicals in products used by especially vulnerable populations (e.g. kids’ toys) and those that people are frequently and directly exposed to (e.g. cosmetics) are generally connected to more far-reaching information requirements than chemicals in other types of products (e.g. electrical and electronic equipment).

3. Information dissemination

Several of the legislations require labelling or other types of product information on or accompanying the product or product package. However, cosmetics are the only type of consumer products examined here for which detailed information about chemical content is required; the Toys Safety Directive, CLP, and California’s Proposition 65 offer less detailed consumer information.

The CE mark, which according to the Toys Safety Directive must accompany all toys in the marketplace, only recognises that the product is in compliance with the legal text. Thus, the CE mark does not offer consumers any information related to chemical content or risk management and is therefore of limited use with regard to enabling informed choices and safe use. However, the Toys Safety Directive also includes recommended precautionary measures, which are more useful to the consumer in this respect. Proposition 65 calls for general information dissemination, giving consumers basic knowledge that chemicals of concern are present, but offer no information specific to risk management.

Articles are often components of more complex articles, e.g. a car seat in a car. The REACH information requirement for complex articles has created a debate. According to REACH, the information requirement applies when a SVHC is present in above 0.1 % by weight of the article (Article 33). When applying the threshold to a complex product, however, the SVHC concentration may be “diluted” to below the triggering threshold, even if the threshold is exceeded for a component of the article. Hence, chemical content information can get lost in the supply chain, thereby limiting consumer knowledge and protection.43

Both REACH and SB509 offer publicly accessible online portals as a route for information dissemination. For REACH, all information gathered in the registration process that is not classified as confidential business information is made available through this online database. California’s SB509 relies on existing data sources (including for example information provided through REACH) to populate its database.

Consumers constitute a very heterogeneous group with regard to perceived needs of information on chemicals in products as well as the ability to understand and utilise such information. A survey conducted as part of the efforts of the international policy framework SAICM with the aim to identify different stakeholders’ needs for information, show that consumers express the need of more information on both the presence of chemicals, and chemicals of concern, in products and information on safe use, storage and disposal of products. Many consumers stressed that to ensure that the information provided is used for informed choices and precautionary actions it has to be in a language they can understand. A conclusion drawn from the survey is that there is a need for more information on chemicals in products than what is currently disseminated and accessible through existing information systems. It is also argued that there probably exists a significant group of consumers that do not perceive a need for this type of information, but who would appreciate if they were provided with information in a format that enabled them to make decisions that would be beneficial from a health and/or environmental perspective.44

43 Ökopoli – GmbH Institut für Ökologie und Politik (No authors stated. Ökopoli responsible for carrying out the project), “REACH Trigger for Information on Substances of Very High Concern (SVHC) – An Assessment of the 0.1 % Limit in Articles” (Copenhagen, Nordic Councils of Ministers, 2010), TemaNord 2010:514, pp. 1 et seq., at p. 10.

4. Responsibility for accessing information

Professional users receive information about chemical substances and mixtures via safety data sheets, whereas consumers must often actively search the information or contact the manufacturer and request information about an article’s contents (i.e. SVHCs in articles under REACH). This burdens the consumer to act, with the probable consequence that consumers will seek – and receive – limited information. Furthermore, preliminary investigations have found that 50% of queried European retailers did not respond to information requests and another 25% of companies’ responses did not meet minimum requirements under REACH pertaining to information dissemination about SVHCs. If REACH required manufacturers to include SVHC information with products directly, this would increase consumer awareness and power. As a point of comparison, Proposition 65 allows Californian consumers to know if a chemical of concern is present in consumer products and some environmental settings (e.g. gas stations). Information about the chemical’s identity and hazardous properties is, however, not required to be provided.

Who is responsible for consumers’ access to information also seems to vary by type of product. Producers and importers are responsible for disseminating information for mixtures and articles identified as being used by sensitive subpopulations or where uses lead to direct, and possibly high, exposures (e.g. toys and cosmetics), whereas for articles containing industrial chemicals (i.e. those regulated under REACH), consumers must request access to the information. Web-based portals, like those created under REACH and SB509, make the information more accessible, but still put the burden on consumers to access the information.

5. Implications for industry and consumers

The regulations discussed here seek to ensure that risks to human health or the environment from the use of chemicals are adequately controlled or insignificant. However, economic considerations have played, and still play, a considerable role in decisions taken with the aim of reducing hazards and risks to human health or the environment. One such example is the decision to authorise uses of SVHCs under REACH, where the reduction of harm is weighted against socio-economic costs (REACH, Article 60). Regarding REACH, many industry stakeholders acknowledged that the costs of complying with REACH were actually quite manageable, and espoused more moderate views in interviews than their advocacy statements. However, further evaluation specifically addressing the industry implications of the information requirements is needed.

Consumers are most likely to value information about environmental risks from sources they deem credible and expert. Even in the context of uncertainty about the implications of chemical exposures, consumers still appreciate having access to information and work to understand what is provided. However, information systems that do not cover all chemicals or are voluntary may not be the most efficient way of providing consumers with toxicity information.

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VI. Concluding recommendations

1. What information should be required from producers and importers?

In general, we recommend that legislations should require producers and importers to show that their substances and products are safe before they are put on the market, rather than put this responsibility on authorities or governments (e.g. TSCA). REACH uses volume thresholds to help prioritise how much information should be required from producers and importers, and for which chemicals. However, volume is not always an appropriate approximation of hazard or risk. The current volume thresholds under REACH have, for example, been criticized for being especially inappropriate for nanoparticle substances, which are often produced, imported, and used in much lower volumes due to their smaller size. However, due to their relatively high reactivity, they could exert toxic effects at relatively low doses. For these reasons, and as has been suggested before, the data requirements for low volume substances under REACH should be strengthened. We recommend requiring manufacturers to provide enough information about all chemicals in the marketplace to enable a hazard classification to be made (in accordance with the CLP criteria). If classified as hazardous, the REACH requirement to perform a CSA will become effective for substances produced/imported in ≤1 tonne per year, which in turn may generate information about the presence of chemicals in consumer products and safe handling. The hazard classifications under the CLP regulation are often used as a basis for priority of substances for restrictions or requirements under other legislation, e.g. the Toys Safety Directive and the Cosmetic Products regulation, and thus in extension the classifications have effect on information dissemination in various areas.

2. What information should be disseminated to consumers, and how?

Since consumer products are an important route of human exposure to chemicals, it is reasonable that consumers are informed of which chemicals are present in products to enable more informed decisions and how they can use these products safely. Producers and importers of products should be required to provide consumers with chemical content information and other information pertinent to risk management. The default should be that all available information relevant for human health and the environment should be publicly available, and claiming otherwise should require additional effort (like the REACH model, which requires companies to apply and pay a fee to request information be maintained confidential). We encourage moving towards a regulatory paradigm in which producers and importers are responsible for informing consumers and downstream users about their products. We also recommend developing infrastructure to support consistent, user-friendly information dissemination throughout the supply chain, possibly through a global system like that which SAICM is currently evaluating the need for.

We posit that risk management includes consumers knowing to which hazardous chemicals they are possibly exposed, i.e. which hazardous chemicals are present in the products, and how to use these products safely. Out of the legislations analysed, we highlight three positive elements: the Cosmetics regulation’s identification of the chemical ingredients present, the CLP’s use of hazard pictograms in combination with hazard and safety phrases, and the Toys Safety Directive’s warnings for minimising risk. With the vision of ensuring that consumers can use all products safely, we encourage industry-wide legislations (e.g. REACH and TSCA), not just product-specific legislations (like the Toys Safety Directive and Cosmetic Products regulation), to require promptly and directly disseminating information about hazard/risk and risk management for all types of consumer products to consumers. It is important to note that the primary responsibility to promote substitution of hazardous chemicals in products to safer alternatives is not the consumer’s, but rests with the chemical industry. However, in the meanwhile and as a supplement to industry and other voluntary initiatives and regulatory restrictions, providing consumers with information is important to enable more
conscious consumer choices. Furthermore, information provided in a user-friendly manner would also be beneficial for, and promoting, companies already producing and selling products containing less, or no, hazardous substances.

When emphasizing the public’s access to information on chemicals in products, it is important to recognize that such information must be provided in a responsible manner as to prevent misinterpretation. Thus, how this information is presented to the consumer is vital. California’s Proposition 65 text-only labels are easy to read and comprehend—although they also require English literacy. The CLP’s combination of pictograms and hazard phrases required for substances and mixtures offers a more promising alternative to future information strategies for products. The REACH and the SB509 online databases provide more detailed information on hazard and risk but will likely only reach a limited number of interested consumers.

Although consumer information via labelling and warnings has been studied by several, e.g. labelling of foods, GM-ingredient labelling and the GHS hazard labelling, few have considered the chemical information that is provided in response to legislations. Based on available information on consumers’ perceived need for information regarding chemicals in products, it seems reasonable to provide more detailed data via easily accessible and user-friendly online databases, while focusing on translating the key information into more straight-forward messages via labelling and/or safety phrases on or accompanying the product. However, more studies on what information consumers want and how that information should be presented are recommended in order for information systems (regulatory and voluntary) to be as effective as possible. In this context, researchers must also evaluate the impact of the different information requirements covered in the present paper on consumers’ risk perception and risk management behaviour.

3. Transatlantic way forward

Historically, the US and EU have learned from each other to improve chemical legislations on both sides of the Atlantic. For example, the EU worked from the US’s early leadership in introducing right-to-know policies like California’s Proposition 65 in the 1980s. Now regulatory efforts in the US, including the implementation of California’s Green Chemistry Initiative and the TSCA reform currently in the US Congress, hope to build upon European achievements like REACH. By analysing strengths and shortcomings of information dissemination strategies in EU and US legislations, this analysis highlights specific elements that should be further evaluated in order to increase public knowledge of chemicals in products and move forward in promoting safe use of consumer products.

VII. Key Points

- EU and US chemical legislations address information on chemicals in products to consumers to different extents and they vary significantly regarding information requirements and information dissemination strategies.
- The EU legislations more comprehensively address and promote consumers’ access to information on chemicals in products than the US legislations.
- Information requirements pertaining to chemicals in articles are much weaker than those for mixtures, and the former needs to be strengthened on both sides of the Atlantic.
- We recommend that chemical policies around the world should require, as a minimum, producers and importers to inform consumers of the presence of hazardous chemicals in the products they put on the market.
- As soon as data are generated, consumers should ideally be informed with enough information about hazard and risk and RMMs associated with the use of a chemical in order to enable safe handling of consumer products, both from a health and environmental perspective.

60 Cohen, interview data, 2009.
Conflicts of Interest

None declared.

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