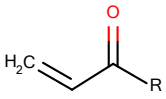
Assessment of regulatory needs

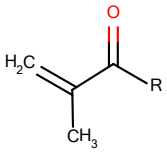
Authority: European Chemicals Agency (ECHA)

Group Name: Esters from acrylic and methacrylic acid with linear and branched aliphatic alcohols, simple acids and salts, aliphatic cyclic alcohols, polyols and ether alcohols (other than methanol and ethanol)

General structure:



acrylates

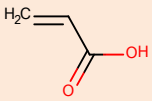
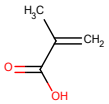
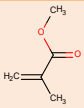
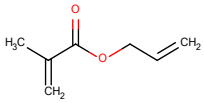
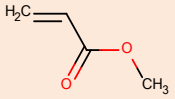
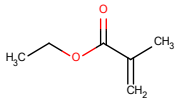
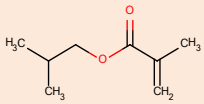
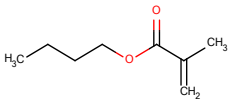
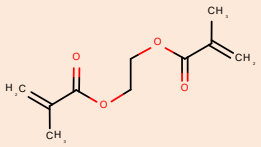
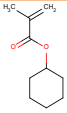


methacrylates

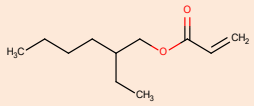
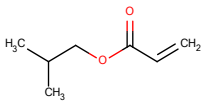
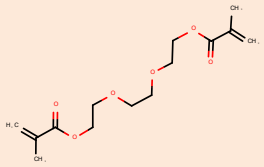
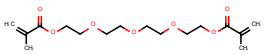
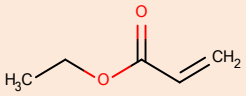
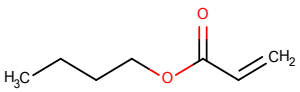
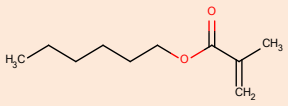
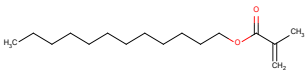
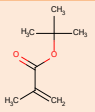
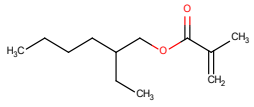
Revision history

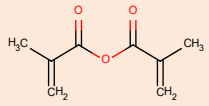
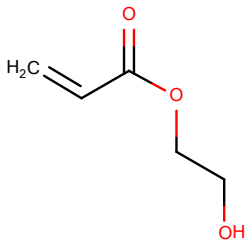
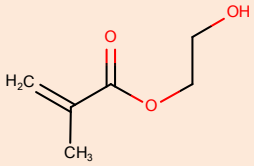
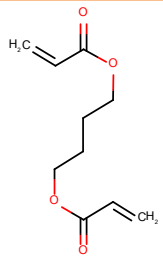
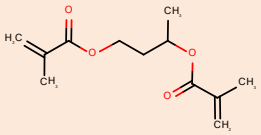
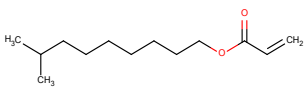
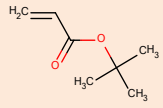
Version	Date	Description
1.0	22 March 2023	

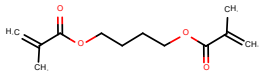
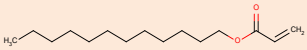
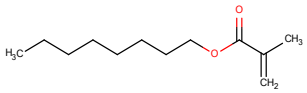
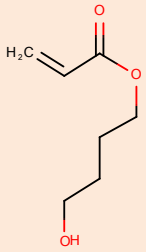
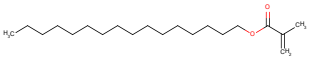
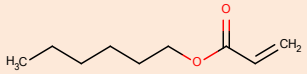
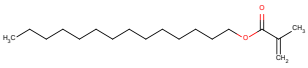
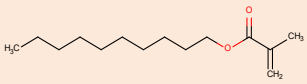
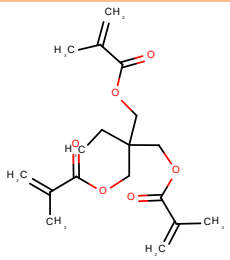
Substances within this group:

EC/List number	CAS number	Substance name [and/ or Substance name acronyms]	Chemical structures	Registration type (full, OSII or TII, NONS), highest tonnage band among all the registrations (t/y) [1]
201-177-9	79-10-7	acrylic acid [AA]		Full, >1000 OSII or TII
201-204-4	79-41-4	methacrylic acid [MAA]		Full, >1000
201-297-1	80-62-6	methyl methacrylate [MMA]		Full, >1000
202-473-0	96-05-9	allyl methacrylate		Full, >1000
202-500-6	96-33-3	methyl acrylate; methyl propenoate [MA]		Full, >1000
202-597-5	97-63-2	ethyl methacrylate [EMA]		Full, >1000
202-613-0	97-86-9	isobutyl methacrylate [iBMA]		Full, >1000
202-615-1	97-88-1	butyl methacrylate [BMA]		Full, >1000
202-617-2	97-90-5	ethylene dimethacrylate		Full, >1000
202-943-5	101-43-9	cyclohexyl methacrylate		Full, >1000

[1] Note that the total aggregated tonnage band may be available on ECHA's webpage at https://echa.europa.eu/information-on-chemicals/registered-substances

EC/List number	CAS number	Substance name [and/ or Substance name acronyms]	Chemical structures	Registration type (full, OSII or TII, NONS), highest tonnage band among all the registrations (t/y) [1]
203-080-7	103-11-7	2-ethylhexyl acrylate [2-EHA]		Full, >1000
203-417-8	106-63-8	isobutyl acrylate		Full, >1000
203-652-6	109-16-0	2,2'-ethylenedioxydiethyl dimethacrylate		Full, not (publicly) available
203-653-1	109-17-1	3,6,9-trioxaundecamethylene dimethacrylate		Full, not (publicly) available
205-438-8	140-88-5	ethyl acrylate [EA]		Full, >1000, OSII or TII
205-480-7	141-32-2	butyl acrylate [BA]		Full, >1000
205-521-9	142-09-6	hexyl methacrylate [HMA]		Full, not (publicly) available
205-570-6	142-90-5	dodecyl methacrylate		Full, >1000
209-548-7	585-07-9	tert-butyl methacrylate		Full, not (publicly) available
211-708-6	688-84-6	2-ethylhexyl methacrylate [2-EHMA]		Full, >1000

EC/List number	CAS number	Substance name [and/ or Substance name acronyms]	Chemical structures	Registration type (full, OSII or TII, NONS), highest tonnage band among all the registrations (t/y) [1]
212-084-8	760-93-0	methacrylic anhydride		Full, >1000, OSII or TII
212-454-9	818-61-1	2-hydroxyethyl acrylate		Full, >1000, OSII or TII
212-782-2	868-77-9	2-hydroxyethyl methacrylate [HEMA]		Full, >1000, OSII or TII
213-979-6	1070-70-8	1,4-butanediyl diacrylate		Full, not (publicly) available
214-711-0	1189-08-8	1-methyltrimethylene dimethacrylate		Full, >1000
215-542-5	1330-61-6	isodecyl acrylate		Full, >1000
216-768-7	1663-39-4	tert-butyl acrylate		Full, >1000

EC/List number	CAS number	Substance name [and/ or Substance name acronyms]	Chemical structures	Registration type (full, OSII or TII, NONS), highest tonnage band among all the registrations (t/y) [1]
218-218-1	2082-81-7	tetramethylene dimethacrylate		Full, >1000
218-463-4	2156-97-0	dodecyl acrylate		Full, >1000
218-465-5	2157-01-9	octyl methacrylate [OMA]		Full, not (publicly) available
219-606-3	2478-10-6	4-hydroxybutyl acrylate		Full, >1000
219-672-3	2495-27-4	hexadecyl methacrylate		Full, >1000
219-698-5	2499-95-8	hexyl acrylate		Full, not (publicly) available
219-835-9	2549-53-3	tetradecyl methacrylate		Full, >1000
221-657-1	3179-47-3	decyl methacrylate		Full, not (publicly) available
221-950-4	3290-92-4	propylidynetrimethyl trimethacrylate		Full, >1000, OSII or TII

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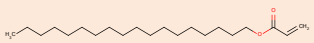
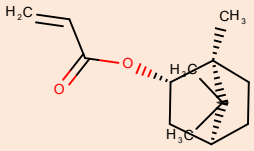
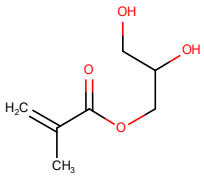
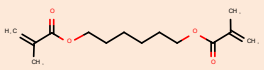
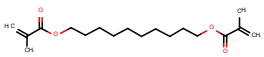
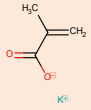
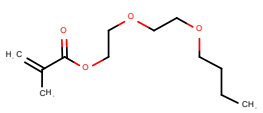
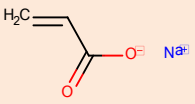
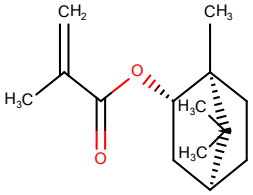
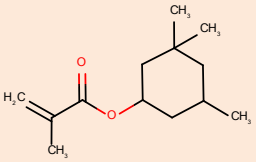
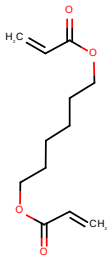
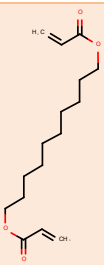
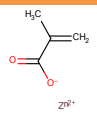
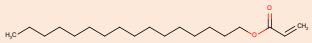
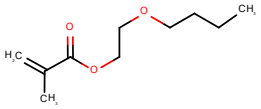
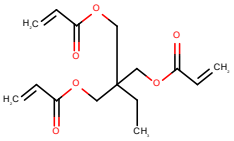
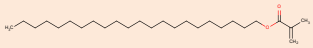
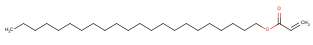
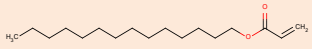
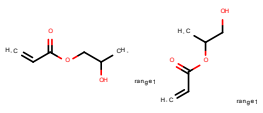
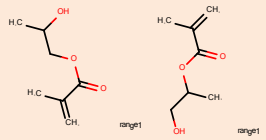
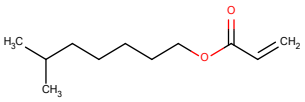
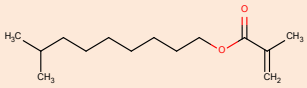
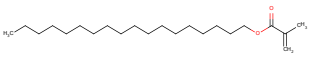
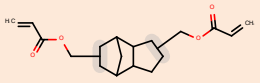
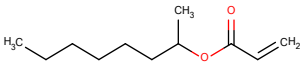
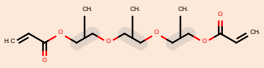
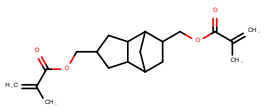
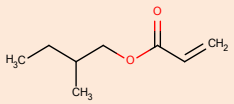
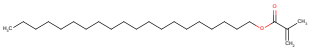
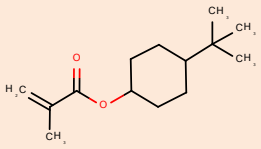
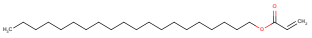
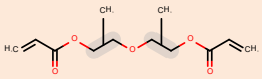
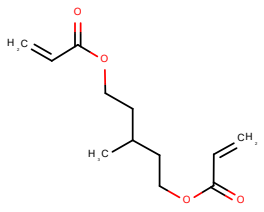
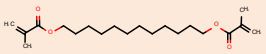
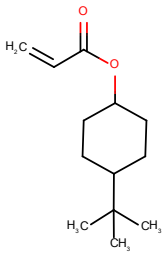
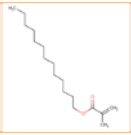
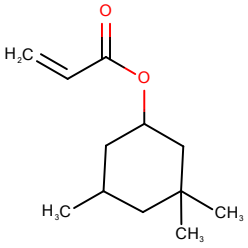
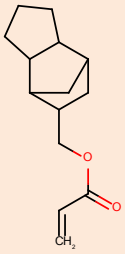
225-383-3	4813-57-4	octadecyl acrylate		Full, >1000
227-177-9	5698-98-6	magnesium acrylate		Full, >1000
227-561-6	5888-33-5	exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate		Full, >1000
227-642-6	5919-74-4	2,3-dihydroxypropyl methacrylate		Full, >1000
229-551-7	6606-59-3	1,6-hexanediyl bismethacrylate		Full, >1000
229-745-1	6701-13-9	1,10-decanediyl bismethacrylate		Full, not (publicly) available
230-007-6	6900-35-2	potassium methacrylate		OSII or TII

EC/List number	CAS number	Substance name [and/ or Substance name acronyms]	Chemical structures	Registration type (full, OSII or TII, NONS), highest tonnage band among all the registrations (t/y) [1]
230-813-8	7328-22-5	2-(2-butoxyethoxy)ethyl methacrylate		Full, not (publicly) available
231-209-7	7446-81-3	sodium acrylate		Full, >1000
231-403-1	7534-94-3	exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate		Full, >1000
231-927-0	7779-31-9	3,3,5-trimethylcyclohexyl methacrylate		Full, not (publicly) available
235-921-9	13048-33-4	hexamethylene diacrylate [HDDA]		Full, >1000
235-922-4	13048-34-5	1,10-decanediyl diacrylate		Full, not (publicly) available

EC/List number	CAS number	Substance name [and/ or Substance name acronyms]	Chemical structures	Registration type (full, OSII or TII, NONS), highest tonnage band among all the registrations (t/y) [1]
236-144-8	13189-00-9	zinc methacrylate		Full, >1000
236-492-0	13402-02-3	hexadecyl acrylate		Full, >1000
236-885-7	13532-94-0	2-butoxyethyl methacrylate		Full, not (publicly) available
238-692-3	14643-87-9	zinc acrylate		Full, >1000
239-701-3	15625-89-5	2-ethyl-2-[[(1-oxoallyl)oxy]methyl]-1,3-propanediyl diacrylate; 2,2-bis(acryloyloxymethyl)butyl acrylate; trimethylolpropane triacrylate [TMPT]		Full, >1000
240-714-1	16669-27-5	docosyl methacrylate		Full, >1000
242-182-6	18299-85-9	docosyl acrylate		Full, >1000
244-491-1	21643-42-5	tetradecyl acrylate		Full, >1000
247-118-0	25584-83-2	acrylic acid, monoester with propane-1,2-diol		Full, >1000, OSII or TII

EC/List number	CAS number	Substance name [and/ or Substance name acronyms]	Chemical structures	Registration type (full, OSII or TII, NONS), highest tonnage band among all the registrations (t/y) [1]
248-666-3	27813-02-1	methacrylic acid, monoester with propane-1,2-diol [HPMA]		Full, >1000
249-707-8	29590-42-9	isooctyl acrylate		Full, >1000
249-978-2	29964-84-9	isodecyl methacrylate		Full, >1000
251-013-5	32360-05-7	octadecyl methacrylate		Full, >1000
255-901-3	42594-17-2	(octahydro-4,7-methano-1H-indenediyl)bis(methylene) diacrylate		Full, >1000
256-005-5	42928-85-8	1-methylheptyl acrylate		Full, not (publicly) available
256-032-2	42978-66-5	(1-methyl-1,2-ethanediyl)bis[oxy(methyl-2,1-ethanediyl)] diacrylate [TPGDA]		Full, >1000

EC/List number	CAS number	Substance name [and/ or Substance name acronyms]	Chemical structures	Registration type (full, OSII or TII, NONS), highest tonnage band among all the registrations (t/y) [1]
256-062-6	43048-08-4	(octahydro-4,7-methano-1H-indenediyl)bis(methylene) bismethacrylate	 Representative structure	Full, not (publicly) available
256-170-3	44914-03-6	2-methylbutyl acrylate		Full, not (publicly) available
256-220-4	45294-18-6	icosyl methacrylate		Full, 10-100
256-277-5	46729-07-1	4-(1,1-dimethylethyl)cyclohexyl methacrylate		Full, not (publicly) available
256-350-1	48076-38-6	icosyl acrylate		Full, > 1000
260-754-3	57472-68-1	oxybis(methyl-2,1-ethanediyl) diacrylate		Full, > 1000
264-727-7	64194-22-5	3-methyl-1,5-pentanediyl diacrylate		Full, >1000

EC/List number	CAS number	Substance name [and/ or Substance name acronyms]	Chemical structures	Registration type (full, OSII or TII, NONS), highest tonnage band among all the registrations (t/y) [1]
276-900-4	72829-09-5	1,12-dodecanediyl bismethacrylate		Full, not (publicly) available
282-104-8	84100-23-2	4-(1,1-dimethylethyl)cyclohexyl acrylate		Full, 10-100
288-509-6	85736-97-6	2-Propenoic acid, 2-methyl-, C11-14-isoalkyl esters, C13-rich		Full, 10-100
289-200-9	86178-38-3	3,3,5-trimethylcyclohexyl acrylate		Full, not (publicly) available
292-081-6	90530-40-8	2-Propenoic acid, 2-methyl-, C6-12-alkyl esters		Full, not (publicly) available
292-122-8	90552-02-6	2-Propenoic acid, 2-methyl-, C12-15-branched and linear alkyl esters		Full, >1000
300-723-4	127823-21-6	(octahydro-4,7-methano-1H-indenyl)methyl acrylate		Full, not (publicly) available

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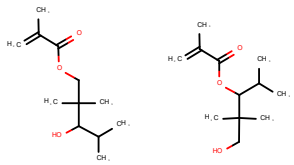
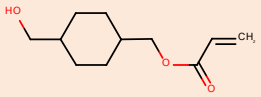
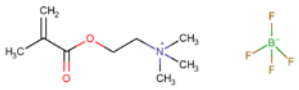
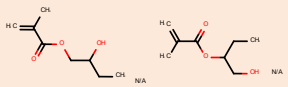
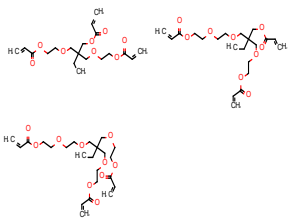
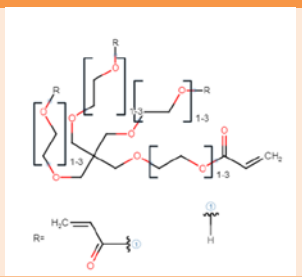
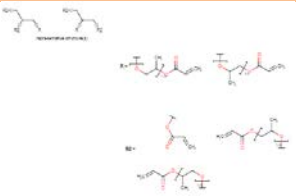
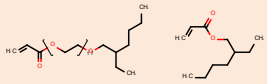
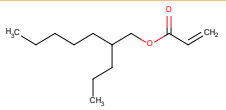
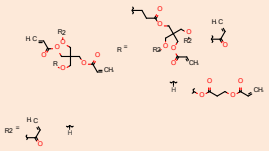
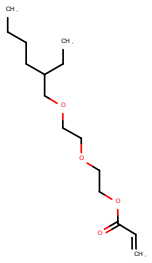
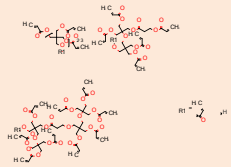
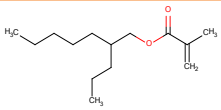
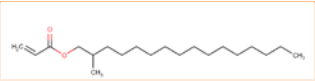
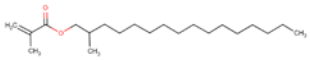
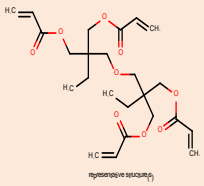
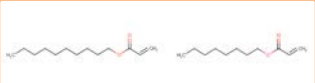
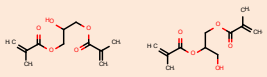
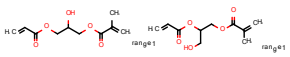
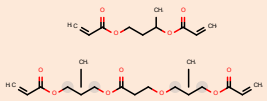
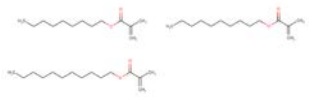
426-170-1	-	HECMA		NONS
439-110-2	-	CHDMMA		NONS
441-610-0	-	METHACRYLATE FLUORIDE SALT		NONS
470-740-0	-	Hydroxybutyl Methacrylate, 94%, mixture of isomers		Full, 1-10
500-066-5	28961-43-5	Propylidynetrimethanol, ethoxylated, esters with acrylic acid		Full, >1000, OSII or TII

EC/List number	CAS number	Substance name [and/ or Substance name acronyms]	Chemical structures	Registration type (full, OSII or TII, NONS), highest tonnage band among all the registrations (t/y) [1]
500-111-9	51728-26-8	Pentaerythritol, ethoxylated, esters with acrylic acid		Full, >1000
500-114-5	52408-84-1	Glycerol, propoxylated, esters with acrylic acid		Full, >1000
500-156-4	62722-22-9	2-Ethylhexan-1-ol, ethoxylated, esters with acrylic acid		Full, not (publicly) available
604-669-5	149021-58-9	2-Propenoic acid, 2-propylheptyl ester		Full, not (publicly) available
629-850-6	1245638-61-2	2-Propenoic acid, reaction products with pentaerythritol		Full, >1000
700-319-1	117646-83-0	2-{2-[(2-ethylhexyl)oxy]ethoxy}ethyl prop-2-enoate		Full, not (publicly) available

EC/List number	CAS number	Substance name [and/ or Substance name acronyms]	Chemical structures	Registration type (full, OSII or TII, NONS), highest tonnage band among all the registrations (t/y) [1]
800-838-4	1384855-91-7	2-Propenoic acid, reaction products with dipentaerythritol		Full, >1000
810-760-2	149855-64-1	2-propylheptyl methacrylate		Full, not (publicly) available (inactive)
810-816-6	1473386-36-5	2-Propenoic acid, heptadecyl ester, branched		Full, not (publicly) available
810-817-1	1473386-29-6	2-Propenoic acid, 2-methyl-, heptadecyl ester, branched		Full, not (publicly) available (inactive)
830-217-3	1393932-71-2	Di(trimethylolpropane) tetraacrylate; Di-TMPTTA		Full, >1000
907-961-3	-	Reaction mass of dodecyl methacrylate and tridecyl methacrylate		Full, not (publicly) available
911-295-9	-	Reaction mass of decyl acrylate and octyl acrylate		Full, not (publicly) available
911-296-4	-	Reaction mass of dodecyl acrylate and tridecyl acrylate		Full, not (publicly) available
931-227-1	28497-59-8	Reaction mass of 2-hydroxy-1,3-propanediyl bismethacrylate and 101525-90-0		Full, not (publicly) available

EC/List number	CAS number	Substance name [and/ or Substance name acronyms]	Chemical structures	Registration type (full, OSII or TII, NONS), highest tonnage band among all the registrations (t/y) [1]
944-287-9		Reaction mass of 3-(Acryloyloxy)-2-hydroxypropyl methacrylate, 2-(Acryloyloxy)-3-hydroxypropyl methacrylate and 2,3-Bis(acryloyloxy)propyl methacrylate		Full, not (publicly) available, OSII or TII
944-962-8		Reaction mass of butane-1,3-diyl diacrylate and 1,3 butanediol diacrylate adduct with 1,3 butanediol monoacrylate		Full, not (publicly) available
947-343-0	-	Reaction mass of nonyl methacrylate and decyl methacrylate and undecyl methacrylate		Full, not (publicly) available

This table does not contain group members that are only notified under the CLP Regulation. However, the list is not necessarily exhaustive. Should further regulatory risk management action on one or more substances in the group be considered, ECHA may make an additional search for related C&L notified substances to be included in the group and develop an assessment of regulatory needs for them.

Contents

DISCLAIMER

The author does not accept any liability with regard to the use that may be made of the information contained in this document. Usage of the information remains under the sole responsibility of the user. Statements made or information contained in the document are without prejudice to any further regulatory work that ECHA, the Member States or other regulatory agencies may initiate at a later stage. Assessment of regulatory needs and their conclusions are compiled on the basis of available information and may change in light of newly available information or further assessment.

Foreword

The purpose of the assessment of regulatory needs of a group of substances is to help authorities conclude on the most appropriate way to address the identified concerns for a group of substances or a single substance, i.e. the combination of the regulatory risk management instruments to be used and any intermediate steps, such as data generation, needed to initiate and introduce these regulatory measures.

An assessment of regulatory needs can conclude that regulatory risk management at EU level is required for a (group of) substance(s) (e.g. harmonised classification and labelling, Candidate List inclusion, restriction, other EU legislation) or that no regulatory action is required at EU level. While the assessment is done for a group of substances, the (no) need for regulatory action can be identified for the whole group, a subgroup or for single substance(s).

The assessment of regulatory needs is an important step under ECHA's Integrated Regulatory Strategy. However, it is not part of the formal processes defined in the legislation but aims to support them.

The assessment of regulatory needs can be applied to any group of substances or single substance, i.e., any type of hazards or uses and regardless of the previous regulatory history or lack of such. It can be done based on a different level of information. A Member State or ECHA can carry out this case-by-case analysis. The starting point is available information in the REACH registrations and any other REACH and CLP information. However, a more extensive set of information can be available, e.g. assessment done under REACH/CLP or other EU legislation, or can be generated in some cases (e.g. further hazard information under dossier evaluation). Uncertainties associated to the level of information used should be reflected in the documentation. It will be revisited when necessary. For example, after further information is generated and the hazard has been clarified or when new insights on uses are available. It can be revisited by the same or another authority.

The responsibility for the content of this assessment rests with the authority that developed it. It is possible that other authorities do not have the same view and may develop further assessment of regulatory needs. The assessment of regulatory needs does not yet initiate any regulatory process but any authority can consequently do so and should indicate this by appropriate means, such as the Registry of Intentions.

For more information on Assessment of regulatory needs please consult ECHA website[2].

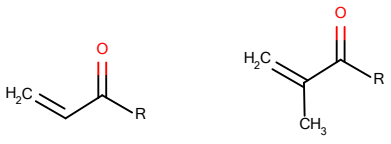
[2] https://echa.europa.eu/understanding-assessment-regulatory-needs

Glossary

ARN	Assessment of Regulatory Needs
CCH	Compliance Check
CLH	Harmonised classification and labelling
CMR	Carcinogenic, mutagenic and/or toxic to reproduction
DEv	Dossier evaluation
ED	Endocrine disruptor
NONS	Notified new substances
OEL	Occupational exposure limit
OSII or TII	On-site isolated intermediate or transported isolated intermediate
PBT/vPvB	Persistent, bioaccumulative and toxic/very persistent and very bioaccumulative
RMOA	Regulatory management options analysis
RRM	Regulatory risk management
SEv	Substance evaluation
STOT RE	Specific target organ toxicity, repeated exposure
SVHC	Substance of very high concern

1 Overview of the group

ECHA has grouped together structurally similar substances based on the presence of the acrylate and methacrylate moieties shown in the figure below.



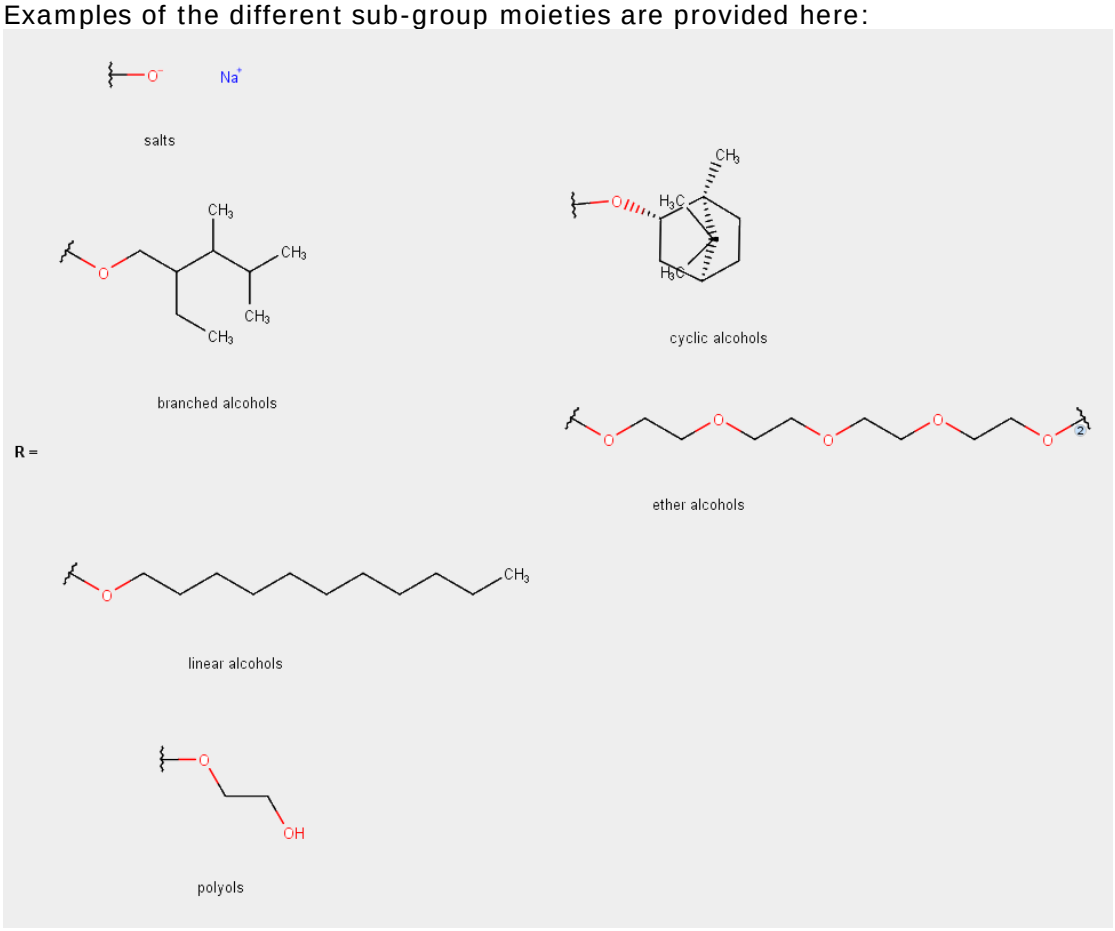
acrylates methacrylates

The group consists of 50 acrylates and 52 methacrylates, all with full registration within REACH except for 1 intermediate, 3 NONS and two methacrylates having an inactive registration.

For the assessment of regulatory needs, the group was split in two based on the characteristics of the '*R'-group*:

1. Acrylates and methacrylates with:
   - salts from aliphatic alcohols
   - Linear alcohols and diols
   - Branched alcohols and diols
2. Acrylates and methacrylates with:
   - Ethylene glycol ethers
   - (Ethoxylated/Propoxylated) polyols
   - Cyclic alcohols (aliphatic)

Examples of the different sub-group moieties are provided here:



Acrylates and methacrylates (hereafter referred to as (meth)acrylates when addressed together) appear to be potent skin sensitisers. Methacrylates are furthermore suspected respiratory sensitisers. One, MMA (EC 201-297-1), has a harmonised classification as Resp. Sens. 1 and for two others (HEMA, EC 212-782-2, and HPMA, EC 248-666-3) a proposal for CLH was submitted by the French Competent Authority respectively in January and July 2022. Furthermore, for two substances the Swedish Competent Authority prepared an RMOA, i.e. 235-921-9 (HDDA)[3] and 256-032-2 (TPGDA)[4] and concluded that contact allergy from exposure to these potent (meth)acrylates is a problem that may call for regulatory action. An EU RAR[5] was developed for AA (EC 201-177-9), MA (EC 201-204-4), MMA (EC 201-297-1) and 2-EHA (EC 203-080-7). For many (50) of the substances, data generation has taken place in the past or is ongoing (CCH, TPE or SEv), and 21 substances have been manually screened by Member State Competent Authorities under the SVHC Roadmap activities, including a COLLA[6] targeted to address possible PBT/vPvB properties of acrylate polyols.

Based on information reported in the REACH registration dossiers, (meth)acrylates are mainly used as monomers in the production of polymers, or as precursor to produce other chemicals. Other reported uses include e.g. the use as vulcanisation agent, solvent, viscosity adjustor or diluent, (reactive) processing aid, photo-reactive chemical, dye or resin. The substances are predominantly used in adhesives and sealants, coatings and paints, polymer preparations and inks and toners. Other less often occurring uses in the group include e.g. use in washing and cleaning products, paper, board and textile treatment products and lubricants and greases. In addition, for some substances the registration dossiers report uses in pharmaceuticals, medical devices (dental care and protheses), as perfume/fragrance, use in air care products (and cosmetics) and use in polishes.

From these uses, exposure of workers (both in industrial and professional setting) is expected during activities with (meth)acrylate containing mixtures, and activities with (pre-)polymer preparations containing residual or unreacted monomer. For the lower molecular weight (meth)acrylates (which are more volatile), or in case of spraying applications, exposure through inhalation may be expected, which is of particular concern for respiratory sensitisers.

[3] https://echa.europa.eu/documents/10162/3a4aedaa-91a8-91bf-8393-af64a391a8c0

4 https://echa.europa.eu/documents/10162/461b8141-7cfb-ec3d-1a20-5b36acbc3a28

5 Risk Assessment Report carried out in accordance with Council Regulation (EEC) 793/931 on the evaluation and control of the risks of “existing” substances.

[6] In March 2017, collaborative approach (COLLA) pilot projects were launched for five groups of substances to explore interactions between ECHA, Member State competent authorities and concerned registrants as an early support process to be applied before the start of regular evaluation processes.

https://www.echa.europa.eu/documents/10162/17221/colla_pilot_project_report_en.pdf/0ba58a2e-675f-387e-4827-05aba076a0e0#:~:text=In%20March%202017%2C%20collaborative%20approach%20%28COLLA%29%20pilot%20projects,support%20process%20to%20be%20applied%20before%20the%20start

Note on the scope of ECHA's assessment of regulatory needs

Regarding hazards, the focus of ECHA's assessment is on CMR (carcinogenic, mutagenic and/or toxic to reproduction), sensitiser, ED (endocrine disruptor), PBT/vPvB or equivalent (e.g. substances being persistent, mobile and toxic), aquatic toxicity hazard endpoints and therefore only those are reflected in the table in section 3. This does not mean that the substances do not have other known or potential hazards. In some specific cases, where ECHA identifies a need for regulatory risk management action at EU level for other hazards (e.g. neurotoxicity, STOT RE), such additional hazards may be addressed in the assessment. An overview of classification is presented in Annex 1.

On the exposure side, ECHA is mainly using the information on uses reported in the registration dossiers (IUCLID) as a proxy for assessing the potential for exposure to humans and releases to the environment. The potential for release / exposure is generally considered high for "widespread" uses, i.e. professional and consumer uses and uses in articles. For these uses, normally happening at many places, the expected level of control is *à priori* considered limited. The chemical safety reports are not necessarily consulted and no quantitative exposure assessment is performed at this stage.

2 Justification for the need for regulatory risk management action at EU level

Based on currently available information, there may be a need for (further) EU regulatory risk management – restriction for skin and/or respiratory sensitising properties, due to the potential for exposure of all substances in the group.

Based on ECHA's assessment of hazard information currently available in the registration dossiers and considerations of structural similarity and presence of a common functional moiety, all the substances in the group have potential skin and/or respiratory sensitising properties. Restriction of all consumer, professional and industrial uses of (meth)acrylates is proposed with priority due to a possible EU wide risk of getting sensitised from handling these substances as such or in mixtures. The possibility for (regrettable) substitution is identified among the substances in the group based on structural similarity and similar technical function and use profile. For this reason, restriction is proposed for all substances. Expanding the scope to also use in articles should be considered when preparing the restriction proposal.

Skin sensitisation

Most (meth)acrylates in the group have skin sensitising properties. These are either already with harmonised classification or meet the criteria for classification for Skin sens. 1A, 1 or 1B. Especially acrylates with polyol and cyclic alcohols are identified as strong or extreme sensitisers. For some substances however, the available data on skin sensitisation is negative or currently not sufficient to conclude on the sensitisation potential. It cannot be excluded that they have skin sensitising properties, based on their structural similarity with those classified for this endpoint.

Respiratory sensitisation

One substance, methyl methacrylate (MMA, EC 201-297-1), has a harmonised classification for respiratory sensitisation Cat.1 (RAC opinion adopted on 8 October, 2020). For two other methacrylates, HEMA (EC 212-782-2) and HPMA (EC 248-666-3), the French Competent Authority submitted a proposal for harmonised classification as respiratory sensitiser Cat.1 respectively in January and July 2022. It is hypothesised that the respiratory sensitising properties can be attributed to the hydrolysis product/metabolite methacrylic acid. Consequently, respiratory sensitisation is suspected for potentially all methacrylates that have this hydrolysis product/metabolite in common. This suspicion is particularly high for those substances that hydrolyse quickly and are of low molecular weight (higher volatility; <C8: EMA 202-597-5; nBMA 202-615-1; iBMA 202-613-0; n-HMA 202-521-9, according to the lower alkyl methacrylates category). Based on the outcome of the classification process for HEMA and HPMA, extrapolation of respiratory effects to the wider group of methacrylates should be considered for further harmonised classification under CLP, starting with those <C8.

For acrylates, there is also growing suspicion that they may have respiratory sensitising properties[7]. Further work would be needed to clarify this concern, which is beyond the current scope of the work.

Information pointing towards a possible EU wide risk for (meth)acrylates

A brief search[8] of the open literature results in numerous (recent) articles describing the high occurrence of skin sensitisation in consumers and workers as a result of (meth)acrylate exposure. The prevalent data suggests that these substances can be potent sensitisers and can lead to severe skin damage, like is summarised in the Annex XV dossier for HDDA (EC 235-921-9)[9]. In addition, the available information suggests cross-reactivity (at least for some of the substances), meaning that after a person has become sensitised to one substance, also another (similar) substance may elicit an allergic response. Most cases are described for nail technicians, dentists, dental technicians, prosthesis technicians, printers, painters, and fiberglass workers[10].

In addition, lower molecular weight methacrylates and cyanoacrylates may cause occupational asthma[11]. EU-wide, 55 positive cases were identified, among which industrial manufacturing, dental work, and beauty care were identified as typical occupations causing occupational asthma. (Meth)acrylate-containing glues were identified as the most prevalent products.

Hazard confirmation of (meth)acrylates

Skin and respiratory sensitisation

Hazard confirmation through harmonised classification is foreseen for skin and respiratory sensitisation to facilitate the restriction proposed. Harmonised classification is proposed only for the substances for which the information available warrants classification. While developing the CLH proposals, classification of those substances for which skin sensitising properties cannot be excluded should be carefully considered (i.e. EC/Lists 201-177-9, 227-177-9, 231-209-6, 256-350-1, 242-182-6, 500-111-9, 911-296-4).

This regulatory activity may run in parallel to any further actions (e.g. data generation). When preparing the CLH proposals, it may be considered what would be the best way to develop them, for instance whether to make a proposal for the group of substances, to submit the dossiers for the different substances individually or submit the different dossiers jointly.

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[7] Occupational asthma caused by acrylic compounds from SHIELD surveillance (1989–2014), G.I. Walters 2017, Occupational Medicine, doi:10.1093/occmed/kqx036

[8] No extensive nor exhaustive literature search has been conducted as part of this assessment. The summary provided here is meant to highlight the possible urgency to act. Further work will be needed once further regulatory action is initiated.

[9] https://echa.europa.eu/documents/10162/76d32c2b-abfc-4e48-87c5-8bb18f44a113.

[10] Acrylic sculpting nails, an occupational hazard for contact dermatitis. Case reports and review of the literature. L. G. Moise et al. (2019), Romanian Journal of Occupational Medicine, Volume 70 (2019) - Issue 1, Pages 46-51. DOI: https://doi.org/10.2478/rjom-2019-0007

[11] Phenotyping Occupational Asthma Caused by Acrylates in a Multicenter Cohort Study, Suolajehto HMD et al (2020) The Journal of Allergy and Clinical Immunology: In Practice, Volume 8, Issue 3, March 2020, Pages 971-979, https://doi.org/10.1016/j.jaip.2019.10.017

Other endpoints

For a large number of substances, data generation is ongoing or is being proposed (CCH/TPE). (Meth)acrylates are unlikely to have PBT/vPvB properties (to be confirmed through CCH).

Few substances may be carcinogenic. EC 239-701-3, is already classified as Carc. 2. EC 202-500-6, 205-438-8 and 203-080-7 are classified by IARC[12] as "possibly carcinogenic to humans" (Group 2B)[13] and may therefore meet the criteria for Carc Cat.2/1B. Further data generation may be needed for these substances to clarify the carcinogenicity. For 247-118-0, SEv is ongoing and CCH is proposed for 500-066-5 and 500-114-5 (on mutagenicity). Harmonised classification could be considered for these substances in addition to the restriction. As the available information suggests that Carc. Cat. 1 is unlikely and rather Cat.2 is suspected, no further regulatory action beyond harmonised classification is currently considered. CLH as Carc. 2 will already require company level risk management measures under the OSH legislation for workers to be in place. In addition, it will trigger possible prohibition of use under the Cosmetic Products Regulation (EC) No 1223/2009, and a further restriction in toys. In case these substances would be classified as Carc. 1B, this would lead to more stringent risk management measures under OSH, medical devices regulation (EU) 2017/746), and cosmetic regulation (EC Nr. 1223/2009) and would imply restriction in consumer mixtures via REACH Annex XVII entry 28. This may add on top of any possible restriction that may be developed for the group of acrylates but will depend on the eventual restriction design. EC 944-287-9 is classified as Carc. 1B based on an impurity. Since its use is only as transported isolated intermediate, no further regulatory action is proposed also for this substance.

For List 830-217-3 and EC 235-921-9, CLH could in addition also cover aquatic toxicity.

For EC 219-606-3 and EC 264-727-7, neurodevelopmental toxicity is suspected based on their alcohol moieties butane-1,4-diol (EC 203-786-5) and 3-methylpentane-1,5-diol (EC 224-709-1), respectively. CCH on the alcohol moieties is currently ongoing. If the reproductive toxicity hazard will be confirmed, further action on these acrylates should be considered.

For EC 221-950-4, the data available point toward reproductive toxicity. Hazard confirmation for this endpoint should be considered when preparing the CLH for skin and respiratory sensitisation.

Preliminary thoughts on a possible proposal for restriction

The proposed restriction would aim at minimising human exposure, for example by limiting the concentration of substances in mixtures, setting certain use conditions and/or defining mandatory exposure limit values. Occupational exposure limits (iOELs) have been derived for few (meth)acrylates at EU-level and by several Member States (see also the table below). Minimising exposures for workers (professional and industrial) and consumers would be in line with the uses already

[12] International Agency for Research on Cancer. Volume 122: isobutyl nitrite, β-picoline, and some acrylates. IARC Working Group. Lyon, France; 5–12 June, 2018.

[13] based on "sufficient evidence" of carcinogenicity in experimental animals and no data or inadequate evidence in humans

advised against[14] by some of the registrants and would contribute to harmonising these uses advised against.

Table: Occupational exposure limits (OELs) available in Europe. The list of EU indicative OELS (iOELs) is complete. Regarding the EU-Member State (EU-MS) OELs, more may be available for other (meth)acrylates.

	iOEL[15] (ppm)	EU-MS[16] OELs (ppm)	REACH Registrants DNEL (ppm) (long term exposure, local effects)
Methacrylates			
Methacrylic acid (EC 201-204-4)		20 (CZ: 5)	25
Methylmethacrylate (EC 201-297-1)	50	10 – 50	50
Ethyl methacrylate (EC 202-597-5)		10 – 50	75
Butyl methacrylate (EC 202-615-1)		10 – 50	70
Isobutyl methacrylate (EC 202-613-0)		50 (DK: 25)	70
Acrylates			
Acrylic acid (EC 201-177-9)	10	2 – 20	10
methyl acrylate; methyl propenoate (EC 202-500-6)	5	2 – 5	5
Ethyl acrylate (EC 205-438-8)	5	5 (DE: 2)	5
Butyl acrylate (EC 205-480-7)		2 (UK:1)	2
Isobutyl acrylate (EC 203-417-8)	2	2	2
Tert-butyl acrylate (EC 216-768-7)		2	2

Ongoing - more generic - initiatives to restrict skin sensitisers

With regards to the concern related to skin sensitisers (potentially) present in consumer mixtures, it has already been identified in other groups of substances and was brought for further discussion to Member States. Work is ongoing on this generic issue by both Member States and ECHA and will therefore not be addressed in this assessment of regulatory needs.

[14] Substances for which some uses are advised against include for the group of acrylates: acrylic acid and methyl acrylate. For these two substances it is advised not to engage in activities that involve polymerisation and not to handle at industrial sites any other formulations than those where the acrylate monomer has reacted. For the group of methacrylates, for methyl, ethyl, butyl, isobutyl, 2-ethylhexyl and octyl methacrylate use in mixtures is advised against for industrial and professional workers and for consumers when these mixtures containing unreacted monomers that may come in contact with the skin or nails. For the other (meth)acrylates, no uses are advised against.

[15] https://osha.europa.eu/en/legislation/directive/directive20191831-indicative-occupational-exposure-limit-values

[16] https://www.ser.nl/grenswaarden giving an overview of occupational exposure limits implemented in the different EU Member States and as prescribed by REACH Registrants.

Another ongoing more generic initiative is to restrict skin sensitisers (and skin irritants and corrosive substances) in textiles, leather, and fur and hide articles (restriction proposal from FR/SE). Both initiatives are expected to only cover part of the scope that may be needed to organise safe use of (meth)acrylates.

It is proposed not to rely on nor to await the further development of ongoing generic initiatives to restrict the use of skin sensitisers. This is motivated by the urgency to act on (meth)acrylates (potential information pointing at an EU-wide risk for human health), the possible need to restrict consumer, professional and industrial uses and the specificity of the restriction needed to allow safe continued use as much as possible.

Further considerations on possible uses and exposures of concern

(Meth)acrylates are mainly used as monomers in the production of polymers, or as precursor to produce other chemicals. They are also reported as being used as vulcanisation agent, as solvent, viscosity adjustor or diluent, as (reactive) processing aid, as photo-reactive chemical, as dye or as resin.

The substances are predominantly used in adhesives and sealants, coatings and paints, polymer preparations and inks and toners. Other less often occurring uses in the group include e.g. use in washing and cleaning products, paper, board and textile treatment products and lubricants and greases. In addition, for some substances the registration dossiers report uses in pharmaceuticals, medical devices (dental care and protheses), as perfume/fragrance, use in air care products (and cosmetics) and use in polishes. From the high similarity in uses and technical functions reported, interchangeability of substances in the group may be assumed.

Workers (both in industrial and professional setting) can be exposed to high (meth)acrylate concentrations in mixtures (when added as an e.g. solvent, viscosity adjustor or photo-reactive chemical) and in (pre-) polymer preparations (when still present as residual or unreacted monomer). Opening a limited number of registration dossiers suggests that concentrations of the registered substances in formulations/mixtures may vary from <0.1% w/w up to 25 – 50% w/w. Worker exposure during the article service life is expected to be much less. Though there is some uncertainty with regard to e.g. plastics possibly still containing (meth)acrylates, and there is some evidence suggesting that exposure to (meth)acrylates through respirable composite dust may occur (this may be relevant for e.g. methacrylates used in medical devices and dental workers that polish dental prothesis[17]. For the higher molecular weight (meth)acrylates, dermal exposure may be most expected. For the lower molecular weight (meth)acrylates (which are more volatile), or in case of spraying applications, exposure through inhalation may also be expected. Exposure through inhalation may be of particular concern for respiratory sensitisers.

Consumer exposure is expected from using mixtures containing these substances such as, e.g. adhesives and sealants, and coatings, paints, inks and toners. Most of these uses involve (meth)acrylate polymer preparations and exposure to the residual monomer is expected low. However, for uses where (meth)acrylates are added to the mixture e.g. as solvent or viscosity adjuster, exposures may be expected higher. Exposure during the article service life, e.g. from the use in plastics, paper, board and textile, and medical devices, is expected low. However, also here, exemptions may be articles that still contain higher concentrations of (meth)acrylates and the use as a fragrance with intended release. Exposure

[17] Release of monomers from composite dust. S.M. Cokic et al. 2017, Journal of Dentistry, 60, 56-62, http://dx.doi.org/10.1016/j.jdent.2017.02.016

through inhalation can be expected for uses as a fragrance, and possibly when consumers handle mixtures or articles that contain volatile (meth)acrylates.

It is typically assumed for skin sensitisers that appropriate risk management measures will be in place for industrial workers in response of classification. For some professional workers and for consumers this is often much less so. The available information on occupation health cases (occupational asthma and skin allergy prevalence data) nonetheless suggests that in the case of (meth)acrylates not only professional workers and consumers but also some industrial workers may be of risk. In the design of a possible restriction should be considered that products aimed at professional workers may be accessible for consumers via Do-It-Yourself markets.

3 Conclusions and actions

The conclusions and actions proposed in the table below are based on the REACH and CLP information available at the time of the assessment by ECHA. The main source of information is the registration dossiers. Relevant public assessments may also be considered. When new information (e.g. on hazards through evaluation processes, or on uses) will become available, the document will be updated and conclusions and actions revisited

Subgroup name, EC/List number	Human Health Hazard	Environmental Hazard	Relevant use(s) & exposure potential	Last foreseen action	Action
Acrylates 202-500-6 203-080-7 203-417-8 205-480-7 205-438-8 212-454-9 213-979-6 216-768-7 219-698-5 235-921-9 239-701-3 247-118-0	Known or potential hazard for skin sensitisation for all for carcinogenicity and mutagenicity for ECs 202-500-6, 203-080-7, 205-438-8, 239-701-3, 247-118-0	Known or potential hazard for aquatic toxicity for all substances (except for ECs 219-606-3, 227-177-9 and 260-754-3)	Industrial, widespread professional and consumer uses, with high potential for exposure and release to the environment for most substances in the group	**Need for EU RRM: Restriction** <u>Justification</u>: Based on a possible EU-wide risk for consumers and workers for skin sensitisation from exposure to acrylates as a substance, in mixtures, as a residual monomer in (pre-) polymer preparations, and possibly articles	**First step:** Restriction and in parallel CCH for 203-417-8, 213-979-6, 235-921-9
Acrylates 201-177-9 215-542-5 218-463-4 219-606-3 225-383-3 227-177-9	Known or potential hazard for skin sensitisation for all substances, (except for EC/Lists 201-177-9, 227-177-9, 231-209-6, 256-350-1, 242-182-6,				**First step:** CLH and in parallel CCH for ECs/Lists 215-542-5, 235-922-4, 236-492-0, 249-707-8, 255-901-3, 256-

227-561-6 231-209-7 235-922-4 236-492-0 238-692-3 242-182-6 244-491-1 249-707-8 255-901-3 256-005-5 256-170-3 256-032-2 256-350-1 260-754-3 264-727-7 282-104-8 289-200-9 300-723-4 439-110-2 500-066-5 500-111-9 500-114-5 500-156-4 604-669-5 629-850-6 700-319-1 911-296-4 800-838-4 830-217-3 (previous 302-434-9) 810-816-6 911-295-9 944-962-8	500-111-9, 911-296-4) for reproductive toxicity for EC 264-727-7 and EC 219-606-3				170-3, 260-754-3, 282-104-8, 300-723-4, 500-066-5, 500-111-9, 500-114-5, 604-669-5, 700-319-1, 800-838-4, 830-217-3 **Next steps (if hazard confirmed):** CLH Restriction

Methacrylates 201-297-1 202-597-5 202-613-0 202-615-1 202-617-2 212-782-2	Known or potential hazard for skin sensitisation and respiratory sensitisation for all	Known or potential hazard for aquatic toxicity for ECs/Lists 229-745-1, 276-900-4, 256-062-6, 231-927-0, 231-403-1, 221-950-4, 229-551-7, 202-617-2, 256-277-5, 202-473-0, 205-521-9, 211-708-6, 218-465-5, 221-657-1, 236-144-8, 249-978-2, 288-509-6, 810-760-2, 907-961-3, 947-343-0 Inconclusive hazard for aquatic toxicity for EC 944-287-9		**Need for EU RRM: Restriction** <u>Justification:</u> Based on a possible EU-wide risk for consumers and workers for skin and respiratory sensitisation from exposure to methacrylates as a substance, in mixtures, as a residual monomer in (pre-) polymer preparations, and possibly articles	**First step:** Restriction
Methacrylates 201-204-4 202-473-0 202-943-5 203-652-6 203-653-1 205-521-9 205-570-6 209-548-7 211-708-6 212-084-8 214-711-0 218-218-1 218-465-5 219-672-3 219-835-9 221-657-1 221-950-4 227-642-6 229-551-7 229-745-1 230-007-6 230-813-8	Known or potential hazard for skin sensitisation for all (except for EC 201-204-4 and List 931-227-1) for respiratory sensitisation for all for reproductive toxicity for EC 221-950-4				**First step:** CCH for ECs/Lists 205-570-6, 211-708-6, 218-465-5, 227-642-6, 229-551-7, 229-745-1, 231-927-0, 249-978-2, 256-062-6, 256-277-5, 276-900-4, 907-961-3, 931-227-1, 236-885-7 **Next steps (if hazard confirmed):** CLH Restriction

231-403-1 231-927-0 236-144-8 236-885-7 240-714-1 248-666-3 249-978-2 251-013-5 256-062-6 256-220-4 256-277-5 276-900-4 288-509-6 292-081-6 292-122-8 441-610-0 470-740-0 810-760-2 810-817-1 907-961-3 931-227-1 944-287-9 947-343-0					

Annex 1: Overview of classifications

Data extracted on 8.07.2021

EC/ List No	Substance name	Harmonised classification	Classification in registrations
Acrylates			
201-177-9	acrylic acid	Flam. Liquid 3 H226 Acute Tox. 4 H302 Acute Tox. 4 H312 Acute Tox. 4 H332 STOT SE 3; H335: C ≥ 1 % Skin Corr. 1A H314 Aquatic Acute 1 H400	Flam. Liquid 3 H226 Acute Tox. 4 H302 Acute Tox. 4 H312 Acute Tox. 4 H332 Skin Corr. 1A H314, specific concentration: >=1 Skin Corr. 1A H314 STOT Single Exp. 3 H335, affected organs: Lungs Aquatic Acute 1 H400 STOT Single Exp. 3 H335, affected organs: respiratory tract Aquatic Chronic 2 H411
202-500-6	methyl acrylate; methyl propenoate	Flam. Liquid 2 H225 Acute Tox. 4 H302 Acute Tox. 4 H312 Acute Tox. 4 H332 Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1 H317 STOT Single Exp. 3 H335, affected organs: Respiratory tract	Flam. Liquid 2 H225 Acute Tox. 4 H302 Acute Tox. 4 H312 Acute Tox. 3 H331 Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1B H317 STOT Single Exp. 3 H335, affected organs: Respiratory tract Aquatic Chronic 3 H412 Acute Tox. 4 H332 STOT Single Exp. 3 H335, affected organs: respiratory system Skin Sens. 1 H317

203-080-7	2-ethylhexyl acrylate	Skin Irrit. 2 H315 Skin Sens. 1 H317 STOT Single Exp. 3 H335, affected organs: Respiratory tract	Flam. Liquid 4 H227 Acute Tox. 5 H303 Skin Irrit. 2 H315 Skin Sens. 1B H317 Skin Sens. 1 H317 STOT Single Exp. 3 H335, affected organs: Respiratory tract Aquatic Acute 2 H401 Aquatic Chronic 3 H412
203-417-8	isobutyl acrylate	Flam. Liquid 3 H226 Acute Tox. 4 H312 Acute Tox. 4 H332 Skin Irrit. 2 H315 Skin Sens. 1 H317	Flam. Liquid 3 H226 Acute Tox. 5 H303 Acute Tox. 4 H312 Acute Tox. 4 H332 Skin Irrit. 2 H315 Skin Sens. 1 H317 STOT Single Exp. 3 H335, affected organs: respiratory tract Aquatic Acute 2 H401 STOT Single Exp. 3 H335, affected organs: Respiratory tract Aquatic Chronic 3 H412
205-438-8	ethyl acrylate	Flam. Liquid 2 H225 Acute Tox. 4 H302 Acute Tox. 4 H312 Acute Tox. 4 H332 Skin Irrit. 2 H315: C ≥ 5 % Eye Irrit. 2 H319: C ≥ 5 % Skin Sens. 1 H317 STOT SE 3 H335: C ≥ 5 %	Flam. Liquid 2 H225 Acute Tox. 4 H302 Acute Tox. 4 H312 Acute Tox. 3 H331 Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1 H317 STOT Single Exp. 3 H335, affected organs: Respiratory tract STOT Single Exp. 3 H335, affected organs: respiratory system Aquatic Chronic 3 H412
205-480-7	butyl acrylate	Flam. Liquid 3 H226 Skin Irrit. 2 H315 Eye Irrit. 2 H319	Flam. Liquid 3 H226 Acute Tox. 4 H332 Skin Irrit. 2 H315 Eye Irrit. 2 H319

		Skin Sens. 1 H317 STOT SE H335	Skin Sens. 1B H317 STOT Single Exp. 3 H335, affected organs: Respiratory tract Aquatic Chronic 3 H412
212-454-9	2-hydroxyethyl acrylate	Acute Tox. 3 H311 Skin Corr. 1B H314 Skin Sens. 1 H317, specific concentration: >=.2 Aquatic Acute 1 H400	Skin Sens. 1 H317 Acute Tox. 4 H302 Acute Tox. 4 H312 Acute Tox. 3 H311 Skin Corr. 1B H314 Skin Sens. 1 H317, specific concentration: >=.2 Aquatic Acute 1 H400 Aquatic Chronic 3 H412
213-979-6	1,4-butanediyl diacrylate	Acute Tox. 4 H302 Skin Corr. 1B H314 Skin Sens. 1 H317	Acute Tox. 4 H302 Acute Tox. 3 H311 Acute Tox. 4 H332 Skin Corr. 1C H314 Eye Damage 1 H318 Skin Sens. 1A H317 Aquatic Chronic 3 H412
215-542-5	isodecyl acrylate		Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1B H317 STOT Single Exp. 3 H335, affected organs: Respiratory tract Aquatic Chronic 2 H411
216-768-7	tert-butyl acrylate	Flam. Liquid 2 H225 Acute Tox. 4 H302 Acute Tox. 4 H312 Acute Tox. 4 H332 Skin Irrit. 2 H315 Skin Sens. 1 H317 STOT Single Exp. 3 H335 Aquatic Chronic 2 H411	Flam. Liquid 2 H225 Acute Tox. 4 H302 Acute Tox. 4 H312 Acute Tox. 3 H331 Skin Irrit. 2 H315 Skin Sens. 1 H317 STOT Single Exp. 3 H335, affected organs: Respiratory tract Aquatic Chronic 2 H411

218-463-4	dodecyl acrylate		Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1 H317 STOT Single Exp. 3 H335, affected organs: respiratory tract Aquatic Chronic 2 H411
219-606-3	4-hydroxybutyl acrylate		Acute Tox. 4 H302 Skin Irrit. 2 H315 Eye Damage 1 H318 Skin Sens. 1 H317
219-698-5	hexyl acrylate	Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1 H317 STOT Single Exp. 3 H335 Aquatic Chronic 2 H411	Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1 H317 STOT Single Exp. 3 H335, affected organs: Respiratory tract Aquatic Acute 1 H400 Aquatic Chronic 2 H411
225-383-3	octadecyl acrylate		Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1 H317 STOT Single Exp. 3 H335, affected organs: respiratory tract Aquatic Chronic 2 H411
227-177-9	magnesium acrylate		-
227-561-6	exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate		Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1 H317 STOT Single Exp. 3 H335, affected organs: respiratory tract Aquatic Acute 1 H400 Aquatic Chronic 1 H410

231-209-7	sodium acrylate		Aquatic Acute 1 H400
235-921-9	hexamethylene diacrylate	Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1 H317	Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1 H317 Aquatic Acute 1 H400 Aquatic Chronic 2 H411
235-922-4	1,10-decanediyl diacrylate		Skin Sens. 1B H317 Aquatic Acute 1 H400, M-factor: 10.0000000000 Aquatic Chronic 1 H410
236-492-0	hexadecyl acrylate		Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1 H317 STOT Single Exp. 3 H335, affected organs: respiratory tract Aquatic Chronic 2 H411
238-692-3	zinc acrylate		Acute Tox. 4 H302 Skin Corr. 1B H314 Eye Damage 1 H318 Skin Sens. 1 H317 Aquatic Acute 1 H400 Aquatic Chronic 1 H410
239-701-3	2-ethyl-2-[[(1-oxoallyl)oxy]methyl]-1,3-propanediyl diacrylate; 2,2-bis(acryloyloxymethyl)butyl acrylate; trimethylolpropane triacrylate	Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1 H317	Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1 H317 Aquatic Acute 1 H400 Aquatic Chronic 1 H410
242-182-6	docosyl acrylate		Skin Irrit. 2 H315 Eye Irrit. 2 H319 STOT Single Exp. 3 H335, affected organs: respiratory tract Aquatic Chronic 2 H411

244-491-1	tetradecyl acrylate		Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1 H317 STOT Single Exp. 3 H335, affected organs: respiratory tract Aquatic Chronic 2 H411
247-118-0	acrylic acid, monoester with propane-1,2-diol	Acute Tox. 3 H301 Acute Tox. 3 H311 Acute Tox. 3 H331 Skin Corr. 1B H314 Skin Sens. 1 H317, specific concentration: >=.2	Acute Tox. 4 H302 Acute Tox. 3 H301 Acute Tox. 4 H312 Acute Tox. 3 H311 Acute Tox. 3 H331 Skin Corr. 1B H314 Eye Damage 1 H318 Skin Sens. 1 H317, specific concentration: >=.2 Skin Sens. 1B H317 Aquatic Chronic 3 H412
249-707-8	isooctyl acrylate	Skin Irrit. 2 H315 Eye Irrit. 2 H319 STOT Single Exp. 3; H335: C ≥ 10 % Aquatic Acute 1 H400 Aquatic Chronic 1 H410	Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1B H317 STOT Single Exp. 3 H335, affected organs: respiratory tract Aquatic Acute 1 H400 Aquatic Chronic 1 H410 Aquatic Chronic 2 H411
255-901-3	(octahydro-4,7-methano-1H-indenediyl)bis(methylene) diacrylate		Skin Sens. 1B H317 Aquatic Chronic 2 H411
256-005-5	1-methylheptyl acrylate		Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1B H317 STOT Single Exp. 3 H335, affected organs: Respiratory tract Aquatic Chronic 2 H411

256-170-3	2-methylbutyl acrylate		Flam. Liquid 3 H226 Acute Tox. 4 H332 Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1B H317 STOT Single Exp. 3 H335, affected organs: respiratory tract Aquatic Chronic 2 H411 Aquatic Chronic 3 H412
256-350-1	icosyl acrylate		Skin Irrit. 2 H315 Eye Irrit. 2 H319 STOT Single Exp. 3 H335, affected organs: respiratory tract Aquatic Chronic 2 H411
260-754-3	oxybis(methyl-2,1-ethanediyl) diacrylate		Skin Irrit. 2 H315 Eye Damage 1 H318 Skin Sens. 1 H317
264-727-7	3-methyl-1,5-pentanediyl diacrylate		Acute Tox. 4 H332 Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1A H317 STOT Single Exp. 3 H335, affected organs: Respiratory tract Aquatic Chronic 3 H412
282-104-8	4-(1,1-dimethylethyl)cyclohexyl acrylate		Skin Irrit. 2 H315 Eye Irrit. 2A H319 Skin Sens. 1A H317 STOT Single Exp. 3 H335, affected organs: lung, specific concentration: >=10 Aquatic Acute 1 H400 Aquatic Chronic 2 H411
289-200-9	3,3,5-trimethylcyclohexyl acrylate		Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1B H317 STOT Single Exp. 3 H335, affected organs: Respiratory tract, specific concentration: >=10

			Aquatic Acute 1 H400 Aquatic Chronic 2 H411
300-723-4	(octahydro-4,7-methano-1H-indenyl)methyl acrylate		Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1B H317 STOT Single Exp. 3 H335, affected organs: Respiratory tract Aquatic Chronic 2 H411
439-110-2	CHDMMA		
500-066-5	Propylidynetrimethanol, ethoxylated, esters with acrylic acid		Eye Irrit. 2 H319 Skin Sens. 1 H317
500-111-9	Pentaerythritol, ethoxylated, esters with acrylic acid		Skin Irrit. 2 H315 Eye Irrit. 2A H319 Aquatic Chronic 2 H411
500-114-5	Glycerol, propoxylated, esters with acrylic acid		Eye Irrit. 2 H319 Skin Sens. 1 H317
500-156-4	2-Ethylhexan-1-ol, ethoxylated, esters with acrylic acid		Acute Tox. 5 H303 Skin Sens. 1 H317 STOT Single Exp. 3 H335, affected organs: Respiratory Tract Aquatic Acute 1 H400, M-factor: 10.0000000000 Aquatic Chronic 1 H410, M-factor: 10.0000000000
604-669-5	2-Propenoic acid, 2-propylheptyl ester		Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1B H317 STOT Single Exp. 3 H335, affected organs:

			Respiratory tract Aquatic Chronic 2 H411
629-850-6	2-Propenoic acid, reaction products with pentaerythritol		Acute Tox. 4 H302 Skin Irrit. 2 H315 Eye Damage 1 H318 Skin Sens. 1 H317 Aquatic Chronic 2 H411
700-319-1	2-{2-[(2-ethylhexyl)oxy]ethoxy}ethyl prop-2-enoate		Skin Irrit. 2 H315 Skin Sens. 1B H317 Aquatic Chronic 2 H411
800-838-4	2-Propenoic acid, reaction products with dipentaerythritol		Eye Irrit. 2 H319 Skin Sens. 1A H317 Aquatic Chronic 3 H412
810-816-6	2-Propenoic acid, heptadecyl ester, branched		Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1B H317 STOT Single Exp. 3 H335, affected organs: respiratory system Aquatic Chronic 2 H411
830-217-3 (previous 302-434-9)	Di(trimethylolpropane) tetraacrylate; Di-TMPTTA		Eye Irrit. 2 H319 Aquatic Chronic 2 H411
911-295-9	Reaction mass of decyl acrylate and octyl acrylate		Skin Irrit. 2 H315 Eye Irrit. 2A H319 Skin Sens. 1B H317 STOT Single Exp. 3 H335, affected organs: Respiratory tract Aquatic Acute 1 H400 Aquatic Chronic 2 H411

911-296-4	Reaction mass of dodecyl acrylate and tridecyl acrylate		Skin Irrit. 2 H315 Eye Irrit. 2A H319 STOT Single Exp. 3 H335, affected organs: Respiratory tract Aquatic Chronic 2 H411
944-962-8	Reaction mass of butane-1,3-diyl diacrylate and 1,3 butanediol diacrylate adduct with 1,3 butanediol monoacrylate		Acute Tox. 3 H311 Skin Corr. 1B H314 Eye Damage 1 H318 Skin Sens. 1 H317 Aquatic Chronic 3 H412
Methacrylates			
201-204-4	methacrylic acid	Acute Tox. 4 H302 Acute Tox. 4 H312 Skin Corr. 1A H314 STOT SE 3; H335: C ≥ 1 %	Acute Tox. 4 H302, specific concentration: >=10 - <25 Acute Tox. 3 H311, specific concentration: >=25 Acute Tox. 4 H332, specific concentration: >=10 - <25 Skin Corr. 1A H314, specific concentration: >=25 Eye Damage 1 H318, specific concentration: >=3 - <10 STOT Single Exp. 3 H335, affected organs: respiratory tract
201-297-1	methyl methacrylate	Flam. Liquid 2 H225 Skin Irrit. 2 H315 Skin Sens. 1 H317 STOT Single Exp. 3 H335	Flam. Liquid 2 H225 Acute Tox. 5 H333 Skin Irrit. 2 H315 Skin Sens. 1B H317 Skin Sens. 1 H317 STOT Single Exp. 3 H335, affected organs: Upper respiratory tract Aquatic Acute 3 H402
202-473-0	allyl methacrylate	Flam. Liquid 3 H226 Acute Tox. 4 H302 Acute Tox. 4 H312 Acute Tox. 3 H331 Aquatic Acute 1 H400	Flam. Liquid 3 H226 Acute Tox. 4 H302 Acute Tox. 3 H311 Acute Tox. 2 H330 STOT Rep. Exp. 2 H373, affected organs: liver

			Aquatic Acute 1 H400 Aquatic Chronic 3 H412
202-597-5	ethyl methacrylate	Flam. Liquid 2 H225 Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1 H317 STOT Single Exp. 3 H335, affected organs: respiratory tract	Flam. Liquid 2 H225 Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1 H317 STOT Single Exp. 3 H335, affected organs: respiratory tract
202-613-0	isobutyl methacrylate	Flam. Liquid 3 H226 Skin Irrit. 2 H315 Skin Sens. 1B H317 STOT Single Exp. 3 H335, affected organs: respiratory tract	Flam. Liquid 3 H226 Skin Irrit. 2 H315 Skin Sens. 1B H317 STOT Single Exp. 3 H335, affected organs: respiratory tract
202-615-1	butyl methacrylate	Flam. Liquid 3 H226 Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1 H317 Skin Sens. 1B H317 STOT Single Exp. 3 H335, affected organs: respiratory tract	Flam. Liquid 3 H226 Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1 H317 Skin Sens. 1B H317 STOT Single Exp. 3 H335, affected organs: respiratory tract
202-617-2	ethylene dimethacrylate	Skin Sens. 1 STOT SE 3; H335: C ≥ 10 %	Skin Sens. 1 H317 STOT Single Exp. 3 H335, affected organs: Respiratory tract Aquatic Chronic 3 H412
202-943-5	cyclohexyl methacrylate		Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1 H317 STOT Single Exp. 3 H335, affected organs: respiratory tract
203-652-6	2,2'-ethylenedioxydiethyl dimethacrylate		Skin Sens. 1B H317

203-653-1	3,6,9-trioxaundecamethylene dimethacrylate		Skin Sens. 1B H317
205-521-9	hexyl methacrylate		Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1B H317 STOT Single Exp. 3 H335, affected organs: respiratory tract STOT Single Exp. 3 H335, affected organs: Respiratory tract Aquatic Chronic 2 H411 Aquatic Chronic 1 H410
205-570-6	dodecyl methacrylate	STOT SE 3; H335: C ≥ 10 %	Skin Irrit. 2 H315 Eye Irrit. 2 H319 STOT Single Exp. 3 H335, affected organs: respiratory tract Aquatic Acute 1 H400 Aquatic Chronic 1 H410
209-548-7	tert-butyl methacrylate		Flam. Liquid 3 H226 Skin Irrit. 2 H315 Eye Irrit. 2 H319 STOT Single Exp. 3 H335, affected organs: respiratory tract STOT Single Exp. 3 H335, affected organs: respiratory tract
211-708-6	2-ethylhexyl methacrylate		Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1B H317 STOT Single Exp. 3 H335, affected organs: respiratory tract Aquatic Chronic 3 H412
212-084-8	methacrylic anhydride		Acute Tox. 4 H302 Acute Tox. 4 H332 Skin Irrit. 2 H315 Eye Damage 1 H318 Skin Sens. 1 H317

			STOT Single Exp. 3 H335, affected organs: respiratory tract
212-782-2	2-hydroxyethyl methacrylate	Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1 H317	Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1 H317
214-711-0	1-methyltrimethylene dimethacrylate		Skin Sens. 1B H317
218-218-1	tetramethylene dimethacrylate		Skin Sens. 1B H317
218-465-5	octyl methacrylate		Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1B H317 STOT Single Exp. 3 H335, affected organs: Respiratory tract STOT Single Exp. 3 H335, affected organs: respiratory tract Aquatic Chronic 1 H410 Aquatic Chronic 3 H412
219-672-3	hexadecyl methacrylate		-
219-835-9	tetradecyl methacrylate		Skin Irrit. 2 H315 Eye Irrit. 2 H319 STOT Single Exp. 3 H335, affected organs: respiratory tract
221-657-1	decyl methacrylate		Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1B H317 STOT Single Exp. 3 H335, affected organs: respiratory

			tract Aquatic Chronic 1 H410
221-950-4	propylidynetrimethyl trimethacrylate		Aquatic Chronic 2 H411
227-642-6	2,3-dihydroxypropyl methacrylate		Repr. 2 H361 Eye Irrit. 2 H319
229-551-7	1,6-hexanediyl bismethacrylate		Aquatic Chronic 3 H412
229-745-1	1,10-decanediyl bismethacrylate		Skin Sens. 1B H317 Aquatic Acute 1 H400, M-factor: 10.0000000000 Aquatic Chronic 1 H410
230-007-6	potassium methacrylate		Acute Tox. 4 H302 Acute Tox. 4 H312 Skin Corr. 1 H314 Eye Damage 1 H318 STOT Single Exp. 3 H335, affected organs: respiratory system
230-813-8	2-(2-butoxyethoxy)ethyl methacrylate		-
231-403-1	exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate		Skin Irrit. 2 H315 Eye Irrit. 2 H319 STOT Single Exp. 3 H335, affected organs: respiratory tract Aquatic Chronic 3 H412

231-927-0	3,3,5-trimethylcyclohexyl methacrylate		Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1B H317 STOT Single Exp. 3 H335, affected organs: Respiratory tract Aquatic Chronic 2 H411
236-144-8	zinc methacrylate		Acute Tox. 4 H302 Eye Damage 1 H318 Skin Sens. 1B H317 Aquatic Acute 1 H400
236-885-7	2-butoxyethyl methacrylate		Skin Irrit. 2 H315 STOT Single Exp. 3 H335, affected organs: other: other: Respiratory system
240-714-1	docosyl methacrylate		Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1B H317 STOT Single Exp. 3 H335, affected organs: respiratory tract
248-666-3	methacrylic acid, monoester with propane-1,2-diol		Eye Irrit. 2 H319 Skin Sens. 1 H317
249-978-2	isodecyl methacrylate		Skin Irrit. 2 H315 Eye Irrit. 2 H319 STOT Single Exp. 3 H335, affected organs: respiratory tract Aquatic Chronic 1 H410
251-013-5	octadecyl methacrylate		-
256-062-6	(octahydro-4,7-methano-1h-indenediyl)bis(methylene) bismethacrylate		Skin Sens. 1B H317 Aquatic Chronic 2 H411

256-220-4	icosyl methacrylate		-
256-277-5	4-(1,1-dimethylethyl)cyclohexyl methacrylate		Acute Tox. 5 H303 Skin Sens. 1 H317
288-509-6	2-Propenoic acid, 2-methyl-, C11-14-isoalkyl esters, C13-rich		Skin Irrit. 2 H315 Eye Irrit. 2 H319 STOT Single Exp. 3 H335, affected organs: respiratory tract
292-081-6	2-Propenoic acid, 2-methyl-, C6-12-alkyl esters		Skin Sens. 1B H317 Aquatic Acute 1 H400 Aquatic Chronic 1 H410
292-122-8	2-Propenoic acid, 2-methyl-, C12-15-branched and linear alkyl esters		-
441-610-0	-		-
470-740-0	Hydroxybutyl Methacrylate, 94%, mixture of isomers		-
810-760-2	2-propylheptyl methacrylate		Eye Irrit. 2 H319 STOT Single Exp. 3 H335, affected organs: respiratory tract Skin Irrit. 2 H315
810-817-1	2-Propenoic acid, 2-methyl-, heptadecyl ester, branched		Eye Irrit. 2 H319 STOT Single Exp. 3 H335, affected organs: respiratory system Skin Irrit. 2 H315

907-961-3	Reaction mass of dodecyl methacrylate and tridecyl methacrylate		Aquatic Acute 1 H400 Aquatic Chronic 1 H410
931-227-1	Reaction mass of 2-hydroxy-1,3-propanediyl bismethacrylate and 101525-90-0		Eye Irrit. 2 H319
944-287-9	Reaction mass of 3-(Acryloyloxy)-2-hydroxypropyl methacrylate, 2-(Acryloyloxy)-3-hydroxypropyl methacrylate and 2,3-Bis(acryloyloxy)propyl methacrylate		Skin Irrit. 2 H315 Eye Damage 1 H318 Skin Sens. 1A H317Carc. 1B H350 Acute Tox. 4 H302
947-343-0	Reaction mass of nonyl methacrylate and decyl methacrylate and undecyl methacrylate		Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1B H317 STOT Single Exp. 3 H335, affected organs: respiratory system

Annex 2: Overview of uses based on information available in registration dossiers

Data extracted on 5.02.2021

Main types of applications structured by product or article types	PC 20: Products such as ph-regulators, flocculants, precipitants, neutralisation	PC 37: Water treatment chemicals	PC 2: Adsorbents	PC 12: Fertilisers	PC 4: Anti-freeze and de-icing products	PC 35: Washing and cleaning products	PC 15: Non-metal-surface treatment products	PC 24: Lubricants, greases, release products	PC 32: Polymer preparations and compounds	PC 1: Adhesives, sealants	PC 9c: Finger paint	PC 9b: Fillers, putties, plasters, modelling clay	PC 9a: Coatings and paints, thinners, paint removes	PC 18: Ink and toners	PC 26: Paper and board treatment products	PC 34: Textile dyes, and impregnating products	PC 21: Laboratory chemicals	PC 19: Intermediate
EC/List number																		
227-561-6						F, I, **P**	F, I, **P**		F, I, **P**	F, I			F, I, **P**	F, I, **P**, **A**	F, I, **P**, **A**	**A**		F, I, **P**
255-901-3													F, I, **P**	F, I, **P**				I
282-104-8									F, I	F, I			F, I	F, I, **P**				I
289-200-9													F, I	F, I, **P**				I

Main types of applications structured by product or article types	PC 20: Products such as ph-regulators, flocculants, precipitants, neutralisation	PC 37: Water treatment chemicals	PC 2: Adsorbents	PC 12: Fertilisers	PC 4: Anti-freeze and de-icing products	PC 35: Washing and cleaning products	PC 15: Non-metal-surface treatment products	PC 24: Lubricants, greases, release products	PC 32: Polymer preparations and compounds	PC 1: Adhesives, sealants	PC 9c: Finger paint	PC 9b: Fillers, putties, plasters, modelling clay	PC 9a: Coatings and paints, thinners, paint removes	PC 18: Ink and toners	PC 26: Paper and board treatment products	PC 34: Textile dyes, and impregnating products	PC 21: Laboratory chemicals	PC 19: Intermediate
300-723-4													F, I	F, I, **P**				I
256-032-2									I	F, I, **P**			F, I, **P, A**	F, I, **P, A**				I
260-754-3						F, I, **P**	F, I, **P**		F, I, **P**	F, I, **P**			F, I, **P**	F, I, **P, C**	F, I, **P**			I
500-066-5									I, **A**	F, I			F, I	F, I, **P**				I
500-111-9									I				F, I, **P**	F, I, **P**				
500-114-5						F, I, **P**	F, I, **P**		F, I, **P**	F, I, **P**			F, I, **P, A**	F, I, **P, A**	F, I, **P, A**	a: 1		I
500-156-4																		
700-319-1									F, I									
212-454-9									I	I			I				I	I

Main types of applications structured by product or article types	PC 20: Products such as ph-regulators, flocculants, precipitants, neutralisation	PC 37: Water treatment chemicals	PC 2: Adsorbents	PC 12: Fertilisers	PC 4: Anti-freeze and de-icing products	PC 35: Washing and cleaning products	PC 15: Non-metal-surface treatment products	PC 24: Lubricants, greases, release products	PC 32: Polymer preparations and compounds	PC 1: Adhesives, sealants	PC 9c: Finger paint	PC 9b: Fillers, putties, plasters, modelling clay	PC 9a: Coatings and paints, thinners, paint removes	PC 18: Ink and toners	PC 26: Paper and board treatment products	PC 34: Textile dyes, and impregnating products	PC 21: Laboratory chemicals	PC 19: Intermediate
213-979-6									I	I			F, I	F, I				
219-606-3									I								I	I
235-921-9						F		F	F, I	F, I, **P**, **C**			F, I, **P**	F, I, **P**			F	I, **P**
239-701-3									F, I, **A**		**C**	I, **P**, **C**	F, I, **P**, **C**	F, I, **P**				
247-118-0									I	I			I				I	I
264-727-7									I	F, I			F, I	F, I, **P**				I
629-850-6						F			I	F, I, **P**	F, I, **P**	F, I, **P**	F, I, **P**	F, I, **P**			F	F, I, **P**
800-838-4						F, I, **P**, **A**	F, I, **P**		F, I, **P**	F, I			F, I, **P**	F, I, **P**, **C**	F, I, **P**			I
830-217-3									I	F, I			F, I	F, I, **P**				I

Main types of applications structured by product or article types	PC 20: Products such as ph-regulators, flocculants, precipitants, neutralisation	PC 37: Water treatment chemicals	PC 2: Adsorbents	PC 12: Fertilisers	PC 4: Anti-freeze and de-icing products	PC 35: Washing and cleaning products	PC 15: Non-metal-surface treatment products	PC 24: Lubricants, greases, release products	PC 32: Polymer preparations and compounds	PC 1: Adhesives, sealants	PC 9c: Finger paint	PC 9b: Fillers, putties, plasters, modelling clay	PC 9a: Coatings and paints, thinners, paint removes	PC 18: Ink and toners	PC 26: Paper and board treatment products	PC 34: Textile dyes, and impregnating products	PC 21: Laboratory chemicals	PC 19: Intermediate
231-403-1	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	F, I, **P**, **C**, **A**	**C**	**C**	**C**	**P**, **C**	I, **C**	**C**	**C**	F, **C**	F, I, **P**, **C**
231-927-0										F, I, **P**								I
256-062-6										F, I, **P**, **C**			F, I					I
256-277-5																		I
203-652-6										F, I, **P**, **C**		**P**						F, I, **P**
203-653-1									I	I, **P**			I, **P**					
230-813-8														I				I
236-885-7								F, I, **P**										F, I, **P**
202-617-2	I, **P**								F, I	**C**							I, **P**	I

Main types of applications structured by product or article types	PC 20: Products such as ph-regulators, flocculants, precipitants, neutralisation	PC 37: Water treatment chemicals	PC 2: Adsorbents	PC 12: Fertilisers	PC 4: Anti-freeze and de-icing products	PC 35: Washing and cleaning products	PC 15: Non-metal-surface treatment products	PC 24: Lubricants, greases, release products	PC 32: Polymer preparations and compounds	PC 1: Adhesives, sealants	PC 9c: Finger paint	PC 9b: Fillers, putties, plasters, modelling clay	PC 9a: Coatings and paints, thinners, paint removes	PC 18: Ink and toners	PC 26: Paper and board treatment products	PC 34: Textile dyes, and impregnating products	PC 21: Laboratory chemicals	PC 19: Intermediate
212-782-2	**C**	**C**	**C**			**C**	I, **C**	**C**	F, I, **C**	F, I, **P**, **C**	**C**	**P, C**	**C**	**C**	**C**	**C**	**C**	I, **C**
214-711-0									I	F, I, **C**			F, I	F, I				I
218-218-1										**C**		F, I	F, I					I
221-950-4						F			F, I	F, I, **P**			F, I, **P**, **C**	F, I, **P**			F, I	I, **P**
227-642-6									I				I					I
229-551-7									I	**P**			F, I, **P**	F, I, **P**				I
229-745-1																		I
235-922-4						F, I, **P**	F, I, **P**		F, I, **P**				F, I	F, I, **P**, **A**	F, I, **P**, **A**	**A**		
248-666-3	**C**	**C**	**C**			**C**	I, **C**	**C**	F, I, **P**, **C**	F, I, **P**, **C**, **A**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	I, **C**

Main types of applications structured by product or article types	PC 20: Products such as ph-regulators, flocculants, precipitants, neutralisation	PC 37: Water treatment chemicals	PC 2: Adsorbents	PC 12: Fertilisers	PC 4: Anti-freeze and de-icing products	PC 35: Washing and cleaning products	PC 15: Non-metal-surface treatment products	PC 24: Lubricants, greases, release products	PC 32: Polymer preparations and compounds	PC 1: Adhesives, sealants	PC 9c: Finger paint	PC 9b: Fillers, putties, plasters, modelling clay	PC 9a: Coatings and paints, thinners, paint removes	PC 18: Ink and toners	PC 26: Paper and board treatment products	PC 34: Textile dyes, and impregnating products	PC 21: Laboratory chemicals	PC 19: Intermediate
276-900-4									I	I, **P**			I, **P**					
470-740-0						I												
931-227-1																		I
944-287-9																		I

Main types of applications structured by product or article types	PC 32: Polymer preparations and compounds	PC 19: Intermediate	PC 1: Adhesives and sealants	PC 9a: Coatings and paints, thinners, paint removes	PC 26: Paper and board treatment products	PC 23: Leather treatment products and PC 34: Textile dyes, and impregnating products	PC 35: Washing and cleaning products	PC 9b: Fillers, putties, plasters, modelling clay PC 9c: Finger paint	PC 31: Polishes and was blends and PC 24: Lubricants, greases, release products	PC 37: Water treatment chemicals and PC 41: Oil and gas exploration and production products	PC 28: Perfumes, fragrances; PC 3: Air care products; PC 39: Cosmetics, personal care	PC 14: Metal surface treatment products	PC 29: Pharmaceuticals ; Medical devices	PC 12: Fertilisers	PC 8: Biocidal products	PC 4: Anti-freeze and de-icing products	PC 21: Laboratory chemicals	PC 30: Photo chemicals	PC 33: Semi conductors
EC/List number																			
201-204-4	F, I, **P**, **C**, **A**	F, I, **P**, **C**	F, I, **P**, **C**	F, I, **P**, **C**	F, I, **P**, **C**	F, I, **P**, **C**	F, I, **P**, **C**	F, I, **P**, **C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	F, I, **C**	**C**	**C**
201-297-1	F, I, **P**, **C**, **A**	F, I, **P**, **C**	F, I, **P**, **C**	F, I, **P**, **C**	F, I, **P**, **C**	I, **P**, **C**	F, I, **P**, **C**	F, I, **P**, **C**, **A**	I, **C**	F, I, **P**, **C**	F, I, **P**, **C**	I, **C**		I	I, **C**	I, **C**	F, I, **P**, **C**		I, **C**
202-597-5	**C**	I, **P**, **C**	**C**	I, **C**	I, **C**	**C**	**C**	**C**	**C**	**C**	**C**	I, **C**			**C**		F, **C**		**C**
202-615-1	F, I, **P**, **C**, **A**	I, **P**, **C**	**C**	F, I, **P**, **C**, **A**	F, I, **P**, **C**	I, **P**, **C**	F, I, **P**, **C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	I, **P**, **C**	**C**
249-978-2	I, **P**, **C**, **A**	I, **C**					**C**		**C**	**C**	**C**	**C**		**C**	**C**	**C**			
202-943-5	F, I, **P**	I		F, I, **P**, **C**, **A**	F, I, **P**, **A**	**A**	F, I, **P**										I		

Main types of applications structured by product or article types	PC 32: Polymer preparations and compounds	PC 19: Intermediate	PC 1: Adhesives and sealants	PC 9a: Coatings and paints, thinners, paint removes	PC 26: Paper and board treatment products	PC 23: Leather treatment products and PC 34: Textile dyes, and impregnating products	PC 35: Washing and cleaning products	PC 9b: Fillers, putties, plasters, modelling clay PC 9c: Finger paint	PC 31: Polishes and was blends and PC 24: Lubricants, greases, release products	PC 37: Water treatment chemicals and PC 41: Oil and gas exploration and production products	PC 28: Perfumes, fragrances; PC 3: Air care products; PC 39: Cosmetics, personal care	PC 14: Metal surface treatment products	PC 29: Pharmaceuticals ; Medical devices	PC 12: Fertilisers	PC 8: Biocidal products	PC 4: Anti-freeze and de-icing products	PC 21: Laboratory chemicals	PC 30: Photo chemicals	PC 33: Semi conductors
236-144-8	I, **P**		I	F, I, **P**, **C**			F	**C**	F										
201-177-9	F, I, **P**	I, **P**	F, I, **P**, **C**	F, I, **P**, **C**	F, I, **P**	F, I	F, I, **P**			I			I, **P**				I, **P**		
205-438-8	I, **A**	I			F, I, **A**						I						I		
205-480-7	F, I, **P**	F, I, **P**	I, **P**, **C**	F, I, **P**, **C**, **A**	F, I, **P**		F, I, **P**										F, I		
218-463-4	F, I, **P**	I	**P**	F, I, **P**, **C**, **A**	F, I, **P**, **A**	**P**, **A**	F, I, **P**												
911-295-9	F, I, **P**	I		F, I, **P**, **A**	F, I, **P**, **A**	**A**	F, I, **P**												
202-500-6	I, **A**	I, **P**	I				I										I, **P**		

Main types of applications structured by product or article types	PC 32: Polymer preparations and compounds	PC 19: Intermediate	PC 1: Adhesives and sealants	PC 9a: Coatings and Paints, thinners, Paint removes	PC 26: Paper and board treatment Products	PC 23: Leather treatment products and PC 34: Textile dyes, and impregnating products	PC 31: Polishes and was blends and PC 24: Lubricants, greases, release products	PC 37: Water treatment chemicals and PC 41: Oil and gas exploration and production products	PC 21: Laboratory chemicals
203-080-7	F, I, **P**	F, I, **P**	F, I, **P**	F, I, **P**				F, I	I
225-383-3	I, **P**	I	**P**	I, **P**					
236-492-0	I, **P**	I	**P**	F, I, **P**					
242-182-6	I, **P**		**P**	I, **P**					
244-491-1	I, **P**	I	**P**	F, I, **P**					
256-350-1	I, **P**	I	**P**	I, **P**					
604-669-5	I, **P**	I	**P**	**P**					

Main types of applications structured by product or article types	PC 32: Polymer preparations and compounds	PC 19: Intermediate	PC 1: Adhesives and sealants	PC 9a: Coatings and Paints, thinners, Paint removes	PC 26: Paper and board treatment Products	PC 23: Leather treatment products and PC 34: Textile dyes, and impregnating products	PC 31: Polishes and was blends and PC 24: Lubricants, greases, release products	PC 37: Water treatment chemicals and PC 41: Oil and gas exploration and production products	PC 21: Laboratory chemicals
238-692-3	F, I, **P**		I	F, I, **P**					
227-177-9			F, **P**						
249-707-8	I	I	F, I	F, I, **P**					
911-296-4		I		F, I, **P**					
215-542-5				F, I, **P**					
202-473-0	F, I, **P**	F, I, **P**		I, **P**			I		
219-672-3	F, I, **P**	I	**P**	**P**		F			
251-013-5	F, I, **P**	I	**P**	**P**					
288-509-6		I	F, I, **P**	F, I, **P**		F, I	F, I		

Main types of applications structured by product or article types	PC 32: Polymer preparations and compounds	PC 19: Intermediate	PC 1: Adhesives and sealants	PC 9a: Coatings and Paints, thinners, Paint removes	PC 26: Paper and board treatment Products	PC 23: Leather treatment products and PC 34: Textile dyes, and impregnating products	PC 31: Polishes and was blends and PC 24: Lubricants, greases, release products	PC 37: Water treatment chemicals and PC 41: Oil and gas exploration and production products	PC 21: Laboratory chemicals
292-122-8	I, **P**	I	**P**	I, **P**					
EC/List number									
907-961-3		I	F, I, **P**	F, I, **P**	F, I	F, I	F, I		
219-835-9	F, I, **P**	I	F, I	F, I					
205-570-6	F, I, **P**						F, I, **P**		I
256-220-4	F, I, **P**	I				I			
810-760-2	I, **P**								
810-817-1	F, I, **P**								

Main types of applications structured by product or article types	PC 32: Polymer preparations and compounds	PC 19: Intermediate	PC 1: Adhesives and sealants	PC 9a: Coatings and Paints, thinners, Paint removes	PC 23: Leather treatment products and PC 34: Textile dyes, and impregnating products	PC 31: Polishes and was blends and PC 24: Lubricants, greases, release products	PC 21: Laboratory chemicals
EC/List number							
218-465-5	F, I	F, I				F, I	
202-613-0	F, I	I					
211-708-6	F, I	I					
292-081-6	F, I						I
205-521-9	F, I						I
209-548-7	I	I					I
212-084-8	I	I					
947-343-0	I						I

Main types of applications structured by product or article types	PC 32: Polymer preparations and compounds	PC 19: Intermediate	PC 1: Adhesives and sealants	PC 9a: Coatings and Paints, thinners, Paint removes	PC 23: Leather treatment products and PC 34: Textile dyes, and impregnating products	PC 31: Polishes and was blends and PC 24: Lubricants, greases, release products	PC 21: Laboratory chemicals
240-714-1		I			I		
221-657-1		I					
230-007-6		I					
441-610-0			I				
231-209-7	F, I	I					
256-005-5	I	I		F, I			
203-417-8	I	I	I	I			I
256-170-3	I	I					I
216-768-7	I						

Main types of applications structured by product or article types	PC 32: Polymer preparations and compounds	PC 19: Intermediate	PC 1: Adhesives and sealants	PC 9a: Coatings and Paints, thinners, Paint removes	PC 23: Leather treatment products and PC 34: Textile dyes, and impregnating products	PC 31: Polishes and was blends and PC 24: Lubricants, greases, release products	PC 21: Laboratory chemicals
810-816-6	I						

F: formulation, I: industrial use, P: professional use, C: consumer use, A: article service life; P, C and A are highlighted in red to indicate widespread use with potential for exposure/release

Annex 3: Overview of completed or ongoing regulatory risk management activities

Data extracted on 1.08.2021

EC / List number	RMOA	Authorisation		Restriction	CLH	Actions not under REACH / CLP
		Candidate list	Annex XIV	Annex XVII	Annex VI (CLP)	
201-177-9						EU RAR[5]
201-204-4						EU RAR[5]
201-297-1					YES	EU RAR[5]
202-473-0					YES	
202-500-6					YES	
203-080-7						EU RAR[5]
235-921-9	YES					
256-032-2	YES					

There are no relevant completed or ongoing regulatory risk management activities for the other substances.