



Knowledge brief

**(Meth)acrylates in nail products – presence,
health effects and potential follow-up**

The methacrylate monomers hydroxyethyl methacrylate (HEMA) and di-HEMA trimethylhexyl dicarbamate (TMHDC) are associated with allergic contact dermatitis among nail technicians and consumers. These substances are commonly used in nail products due to their ability to polymerise and harden rapidly under UV light. However, unpolymerised or poorly applied products can trigger sensitisation of the adjacent skin. In response to the Scientific Committee on Consumer Safety (SCCS) opinion (2018) regarding the potential human health risk of HEMA and di-HEMA TMHDC in nail products, the European Commission (EC) has restricted the use of these substances to professional use only (EC, 2020). Following this restriction, explicit warnings on the packaging are required: "For professional use only" and "Can cause an allergic reaction". The restriction is based on the assumption that professionals are trained to apply nail products precisely, avoiding skin contact and thereby reducing the risk of sensitisation compared to untrained consumers.

The aim of this report is to provide an overview of the current presence of (meth)acrylates in nail products and to gain further insight into the consequences of the recent restriction on the use of HEMA and di-HEMA TMHDC. Specifically, the report examines whether there has been a change in (meth)acrylates used in nail products marketed to consumers. For these alternative (meth)acrylates, the available information on their hazardous properties has been reviewed. Additionally, the status of regulatory compliance, usage, and labelling of the various (meth)acrylates is included. Based on this information, recommendations are provided for potential measures to enhance the protection of consumers against the risk of sensitisation to (meth)acrylates in the future.

For this purpose, we used the following methodology. First, for the inventory of the current use of (meth)acrylates, we conducted a search using the Mintel Global New Products Database (GNPD) combined with a literature search. Mintel tracks new consumer product launches worldwide and therefore does not provide information about products that have been removed from the market. Furthermore, it does not count different (colour) versions of a product as separate launches. As a consequence, the actual variety and availability of product options in the market may be underestimated when relying solely on this data source. The search query was limited to nail products containing acrylates with film-forming properties. The function of film forming was selected as this is a commonly shared function of acrylate monomers in the CosIng database. It was not possible to restrict the search exclusively to products that require UV light for polymerisation.

Two searches were performed with a different aim:

1. Between December 2020 and September 2025 to investigate the influence of the EC restriction for professional use of HEMA and di-HEMA TMHDC in nail products;
2. Between January 2016 and September 2025 to visualise trends.

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In order to evaluate whether the products from the Mintel database containing HEMA or di-HEMA TMHDC included the statement 'for professional use only', we performed a manual evaluation of the labels. This was necessary since it is not recorded as a separate category within the Mintel database, as the database registers consumer product launches.

Additionally, data from the SkinConsult database (2025) is included, as well as additional useful information from Steunebrink et al. (2024a), and the NVWA market survey of 2015.

The information in this report is provided as answers to policy questions and structured in different topics:

1. Presence of acrylates in nail products and trends over time;
2. Regulatory compliance, use and labelling;
3. Sensitisation risk and clinical data;
4. Regulatory gaps and policy recommendations.

1 Prevalence of acrylates in nail products and trends over time

1.1 Has the prevalence of HEMA and di-HEMA TMHDC in nail products changed in recent years?

In the time period December 2020 and September 2025, a total of 881 nail products containing acrylates for film forming were launched on the European market. The acrylates are present in the form of monomers, oligomers or copolymers. From the ingredient description it is unclear if the copolymers also contain monomers, which are known as the drivers of acrylate sensitisation. Additionally, chemical analysis has shown that the presence of multiple (meth)acrylates in commercial products was not declared in the Material Safety Data Sheet (MSDS) (de Groot and Rustemeyer, 2024). The results described in this report are of the 93 nail products launched since December 2020 that contain (meth)acrylate monomers as ingredients.

The number of nail products containing HEMA and/or di-HEMA TMHDC placed on the European market has decreased in the last 10 years (see Table 1). Previously, HEMA and di-HEMA TMHDC were present in almost all nail products on the market; however, after December 2020, their occurrence decreased to about 15% in 2025. In 2023 and since, fewer than half of newly released nail products contained HEMA and/or di-HEMA TMHDC.

Table 1 Number of nail products launched on the Mintel database containing (meth)acrylates for film forming and containing HEMA and/or di-HEMA TMHDC specifically.

Products containing:		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
(Meth)acrylates (total)		26	21	24	12	12	14	16	22	20	21
HEMA and/or di-HEMA TMHDC	N	21	17	20	11	11	11	11	7	7	3
	%	80.8	81.0	83.3	91.7	91.7	78.6	68.8	31.8	35.0	14.3
HEMA	N	11	10	10	6	5	10	11	7	6	3
	%	42.3	47.6	41.7	50.0	41.7	71.4	68.8	31.8	28.6	13.6
Di-HEMA TMHDC	N	15	15	13	7	11	8	8	7	5	2
	%	57.7	71.4	54.2	58.3	91.7	57.1	50.0	31.8	23.8	9.1

There is no information in the Mintel Database available regarding the actual concentration of (meth)acrylates in nail products. However, the ingredients are listed on the label in decreasing order of weight within the product. HEMA and di-HEMA TMHDC most frequently appear as the first or second ingredient on product labels.

In addition to the Mintel Database, the company SkinConsult BV shared their (anonymised) dataset on (meth)acrylate-containing cosmetic products, which also includes concentration data from 2015 until 2025. Most data are from the last three years. In this dataset HEMA was present in 2.1% of nail products with concentrations ranging from 7.5 % to 35% (w/w) and di-HEMA TMHDC in 2.8% of nail products with a concentration range from 45% to 76.7% (w/w) (See table 3).

There are two previously conducted market reviews available from the Netherlands, which inform on the presence of HEMA and di-HEMA TMHDC in nail products. The market survey performed by the Netherlands Food and Consumers Product Safety Authority (NVWA) in 2015 indicated that HEMA was present in 51% of the 91 gel nail polishes and di-HEMA TMHDC in 47% of these products, respectively. The online market survey on the website Bol.com performed by Steunebrink et al. in 2024(a), showed that HEMA was present in 58% of the 394 nail cosmetics and di-HEMA TMHDC in 34%.

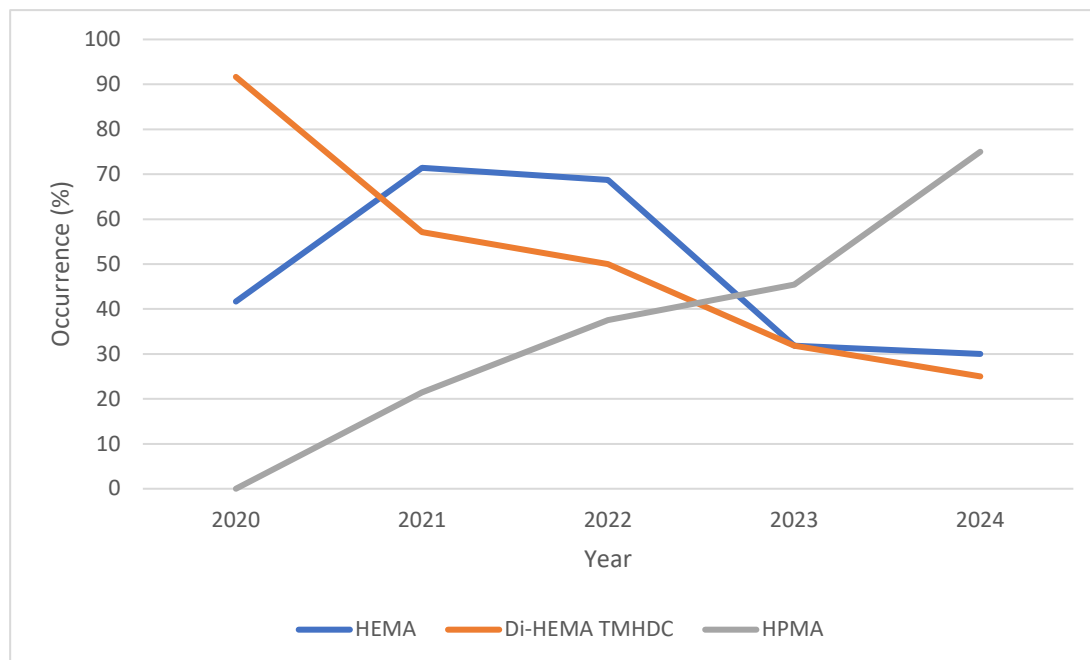
In answer to the question whether their prevalence changed, the current data suggest that in new nail products placed on the market, HEMA and di-HEMA TMHDC are being replaced by other (meth)acrylates in last 10 years. However, market reviews indicate that products already present on the market containing HEMA and di-HEMA TMHDC are not being removed from the market.

1.2 Which (meth)acrylates are added to nail products either in addition to or as substitution for HEMA and di-HEMA TMHDC?

The most common acrylate monomer listed on the label of nail products launched since December 2020 is hydroxypropyl methacrylate (HPMA). In 2021, 21.4% of new nail products contained HPMA, and by 2024 this proportion increased to 75.0% (Figure 1). In the 2023 market survey of Steunebrink et al. (2024a) HPMA was an ingredient in 25.4% of the products, the third most common ingredient after HEMA and di-HEMA TMHDC.

Similar to the results based on the Mintel Database, HPMA was the most frequently found acrylate monomer in the SkinConsult database from 2015 until 2025. HPMA was an ingredient in 88 of the 179 nail products containing (meth)acrylates, with concentrations ranging from 1% to 75% (w/w) of the product (Table 2).

Figure 1 Occurrence (in percentage) of HEMA (blue), di-HEMA TMHDC (red) and HPMA (grey) as an ingredient in 93 nail products newly placed on the European market per year (Mintel database) since 2020.



Besides HPMA, HEMA and di-HEMA TMHDC, there are other (meth)acrylates that are frequently reported in nail products in both the Mintel Database and the market analysis by Steunebrink et al. (2024a). The most commonly reported (meth)acrylates in present in both datasets are depicted in Table 2.

Several of these (meth)acrylates also appear in the SkinConsult dataset (2015-2025), which provides some insight in the concentrations. This data gives useful information on the concentrations, however, it is noted that for most (meth)acrylates the database includes only a limited number of products. In Table 3 the concentrations of the ingredients present in all three datasets are shown, along with hydroxyethyl acrylate (HEA) and tricyclodecane dimethanol diacrylate (TCDDA). Both HEA and TCDDA are reported in the Mintel database, but not listed in the paper by Steunebrink et al. (2024a). Although HEA is only reported as a monomer in two products from the Mintel database, it is reported in different copolymers, often as end-cap in order to make the copolymer reactive to UV.

Thus, HPMA is the most commonly added (meth)acrylate in nail products, either in addition or as a substitute for HEMA and di-HEMA TMHDC. Since December 2020, HPMA's prevalence in new nail products has increased significantly. Other (meth)acrylates frequently used include IBOMA, IBOA, TEGDMA, TMPTA, and others.

Table 2 List of (meth)acrylates that are present in nail products listed in the Mintel database and Steunebrink et al. (2024a) paper. The search query for the Mintel database was limited to data from December 2020 up and until September 2025 listing acrylates with film-forming properties launched on the European market (n=93) and nail products sold on the website of bol.com between 5 June 2023 and 10 July 2023 (n=394, Steunebrink et al).

Name of (meth)acrylate	CAS number	Abbreviation	New product launches on market (%) (Mintel)	Ingredient prevalence on market (%) (Steunebrink et al., 2024a)
Hydroxypropyl methacrylate	27813-02-1	HPMA	53.8	25.4
2-Hydroxyethyl methacrylate	868-77-9	HEMA	39.8	58.1
Di-HEMA trimethylhexyl dicarbamate	72869-86-4	di-HEMA TMHDC	32.3	34.0
Isobornyl methacrylate	7534-94-3	IBOMA	9.7	15.5
Triethyleneglycol dimethacrylate	109-16-0	TEGDMA	7.5	1.8
Trimethylolpropane triacrylate	15625-89-5	TMPTA	6.5	11.9
Glycol HEMA-methacrylate	97-90-5		5.4	6.6
Isobornyl acrylate	5888-33-5	IBOA	5.4	1.5
Tripropylene glycol diacrylate	42978-66-5	TPGDA	4.3	1.3
HEMA maleate	51978-15-5		4.3	0.3
Trimethylolpropane trimethacrylate	3290-92-4	TMPTMA	4.3	6.1
Glyceryl dimethacrylate	1830-78-0		3.2	1.3
Glycerol propoxylate triacrylate	52408-84-1	1PO/OH	3.2	2.0
Dipentaerythrityl hexaacrylate	29570-58-9		2.2	2.8
Dipropylene glycol diacrylate	57472-68-1	DPGDA	2.2	1.5
Acrylic acid	79-10-7	AA	1.1	3.3
Dipentaerythritol hexaacrylate	29570-58-9	DPHA	1.1	2.8
Hema-phosphate	24599-21-1		1.1	0.3
Methacrylic acid	79-41-4	MAA	1.1	1.5
Tetrahydrofurfuryl methacrylate	2455-24-5	THFMA	1.1	4.3

Table 3 Concentration data of (meth)acrylates according to SkinConsult database (checked December 2025).

Name of (meth)acrylate	CAS number	Abbreviation	Present in products in Skin Consult database (%)	Concentration in %w/w			
				Avg.	Min.	Max.	Med.
Hydroxypropyl methacrylate	27813-02-1	HPMA	44.7	21.7	1.0	75.0	21.0
Isobornyl acrylate	5888-33-5	IBOA	18.4	12.4	9.9	30.0	10.0
Tetrahydrofurfuryl methacrylate	2455-24-5	THFMA	5.6	7.1	4.7	7.5	7.5
Isobornyl methacrylate	7534-94-3	IBOMA	4.5	20.1	8.0	30.0	25.0
Di-HEMA trimethylhexyl dicarbamate	41137-60-4	Di-HEMA TMHDC	2.8	68.4	45.0	76.7	76.4
2-Hydroxyethyl methacrylate	868-77-9	HEMA	2.1	16.5	7.5	35.0	17.0
Trimethylolpropane triacrylate	15625-89-5	TMPTA	1.7	34.6	23.8	40.0	40.0
Hydroxyethyl acrylate	818-61-1	HEA	1.1	45.0	40.0	50.0	45.0
Tricyclodecane dimethanol diacrylate	42594-17-2	TCDDA	0.6	15.0	15.0	15.0	15.0
Tripropylene glycol diacrylate	42978-66-5	TPGDA	0.6	3.0	3.0	3.0	3.0

2 Regulatory compliance, use and labelling under the Cosmetic Products Regulation (CPR)

2.1 Does the warning 'for professional use only' appear on the label of products containing HEMA and/or di-HEMA TMHDC? And if so, how is this implemented?

The warning 'for professional use only' or 'can cause an allergic reaction' is not consistently displayed on all nail products available on the market. In the online market survey performed by Steunebrink et al. (2024a), only 30-40% of nail products listed on the Dutch website Bol.com included one of these warnings on their label. Furthermore, the authors could not confirm from the online information whether the warnings were present on the physical product label.

The Mintel database includes detailed photographs of the product and product label. In Mintel, HEMA was notified as an ingredient in 38 of 40 nail products placed on the European market since December 2020. Di-HEMA TMHDC was an ingredient in 30 products and 28 of these products contained both acrylic monomers. Of the 40 nail products, 9 products (22.5%) did not include the warning 'for professional use only'. Four of the non-compliant products were launched in 2021, one in 2022, one in 2023, and three in 2024. The two products published in the Mintel Database during the transition period after the regulation enters into force but before full compliance became mandatory (June 3rd, 2021), did include the warning.

On the label of the 31 products with a statement 'for professional use only', the warning was always included in the fine print and not on the front of the packaging, usually

appearing as the first statement. Figure 2 shows an example of a product placed on the Dutch market that includes the statement 'for professional use only'.

This demonstrates that non-compliant nail products are present on the market and that, even when products comply with regulations, the effectiveness of the warning on the label remains questionable.

Figure 2 Nail product placed on the Dutch Market in August 2024, containing di-HEMA TMHDC and HEMA.



2.2 Where are products for professional users sold? How accessible are they to consumers?

Nail products for professional users are sold both in physical stores and online. Specialist supply stores targeting nail salons and technicians often require business credentials for purchase, but some supply stores do not restrict sales exclusively to professionals. Therefore, access to products containing HEMA and di-HEMA TMHDC via these channels appears to be somewhat limited. However, it is not uncommon for salons to source products from suppliers and then resell them to clients, sometimes bundled with training or services.

At the online market, there are web shops targeting licensed professionals that require business credentials at check out. In many cases, however, sales are not restricted, and web shops often target both professionals and consumers.

The nail product depicted in Figure 2 is available through various online sellers. Recently, this product was out of stock on the website of a well-known retail store for health, beauty and personal care products in the Netherlands and Belgium. An online consumer product seller of the product shown in Figure 2 did not include a 'for professional use' warning on their website, nor was the statement visible in product photos online.

This situation is reflected in the market analysis performed by Steunebrink et al. (2024a), which found that HEMA was the most common ingredient in nail cosmetics sold to consumers online, followed by di-HEMA TMHDC.

In summary, this demonstrates that accessibility to products containing HEMA and di-HEMA TMHDC ranges from limited in specialist supply stores to very easily accessible through online sales.

3 Sensitisation risk and clinical data

3.1 Which (meth)acrylates are classified for sensitisation?

The European Commission restriction for professional use was based on the sensitising potential of HEMA and di-HEMA TMHDC. Both HEMA and di-HEMA TMHDC have a harmonised classification for skin sensitisation (H317). HEMA was already classified as a skin sensitizer under Adaptation to Technical Progress (ATP) CLP00, while di-HEMA TMHDC was classified as a skin sensitizer category 1B under ATP21 based on the available animal data and supported by human data (ECHA, 2021b). According to the SCCS, HEMA and di-HEMA TMHDC are considered weak to moderate sensitizers (SCCS, 2018).

In March 2023, ECHA published an Assessment of Regulatory Needs (ARN) investigating the sensitising properties of (meth)acrylates, both for skin and the respiratory tract (ECHA, 2023a). It was concluded that there is a possible EU wide risk of sensitisation from handling (meth)acrylates as a substance or in mixtures. Additionally, the potential for regrettable substitution was identified within this group, based on structural similarity and comparable technical function and use profile.

Skin sensitising properties were assigned to most (meth)acrylates. More specifically, acrylates with polyol and cyclic alcohols are identified as strong or extreme sensitizers. Based on structural similarity, it is expected that all (meth)acrylates, even those currently lacking harmonised classification, are potential skin sensitizers (ECHA, 2023a).

Of the (meth)acrylates used as film-forming ingredient in products listed in the Mintel database, Table 4 provides the substances with a harmonised classification for skin sensitisation.

Table 4 Harmonised classification for skin sensitisation of (meth)acrylates added as film forming ingredient to nail products and specific concentration limit (SCL) if applicable.

Name of (meth)acrylate	CAS number	Abbreviation	Skin sensitisation	SCL
Butyl acrylate	205-480-7		Skin Sens. 1	-
Glycol HEMA-methacrylate	97-90-5		Skin Sens. 1	-
Hydroxyethyl acrylate	818-61-1	HEA	Skin Sens. 1	C ≥ 0.2%
Isobornyl acrylate	5888-33-5	IBOA	Skin Sens. 1A	-
Triethyleneglycol dimethacrylate	109-16-0	TEGDMA	Skin Sens. 1B	-
Tetrahydrofurfuryl methacrylate	2455-24-5	THFMA	Skin Sens. 1A	-
Trimethylolpropane triacrylate	15625-89-5	TMPTA	Skin Sens. 1	-
Tripropylene glycol diacrylate	42978-66-5	TPGDA	Skin Sens. 1	-
Hydroxypropyl methacrylate*	27813-02-1	HPMA	Skin Sens. 1	-

* Note: RAC opinion available and awaiting adaptation into ATP24

Additionally, there is a Risk Assessment Committee (RAC) Harmonised Classification and labelling (CLH) opinion available for methacrylic acid, monoester with propane-1,2-diol (HPMA; CAS: 27813-02-1) proposing harmonised classification and labelling at EU level for skin sensitisation that awaits adaptation to Technical Progress and is on the list for ATP24. HPMA is classified as a skin sensitizer without sub-categorisation. The animal data of HPMA point towards a very low skin sensitising potential, but the human data show a notably high frequency of sensitised individuals above the threshold value for classification.

Methacrylates are also suspected respiratory sensitizers. Methyl methacrylate has been proposed for harmonised classification for respiratory sensitisation (H334) by RAC (ECHA, 2021a and ECHA, 2024) based on one epidemiological cohort study on workers, one survey with medical examination of workers and six case studies of workers. The sensitising properties of methyl methacrylate are attributed to the formation of methacrylic acid during rapid hydrolysis. Therefore, respiratory sensitisation is suspected for all methacrylates that share this hydrolysis product. For both HEMA and HPMA classification for respiratory sensitisation was proposed in CLH reports submitted to ECHA, however, RAC concluded that classification is not warranted due to inconclusive data (ECHA, 2023c,d). The classification for respiratory sensitisation can currently only be assigned based on human epidemiological data and/or case studies as there is no validated animal or *in vitro* test available for this hazard class. It is, however, very difficult to determine the causative agent in human observations. Additionally, occupational physicians are unlikely to suspect (meth)acrylates as the causative agent in a patient's asthma as the respiratory sensitisation potential is relatively unknown (ECHA, 2021a).

To conclude, all (meth)acrylates are suspected to be sensitising to the skin and respiratory tract. However, for only a few substances harmonised classification is currently adopted.

3.2 *Are there indications that sensitised individuals experience cross-sensitisation between (meth)acrylates?*

Allergy to just one (meth)acrylate is very rare due to cross-sensitisation, but also due to concomitant sensitisation. Cross-sensitisation is when an individual that was previously sensitised to a substance reacts to a different but structurally related substance and concomitant sensitisation is when an individual simultaneously gets sensitised to multiple substances. The distinction between cross-sensitisation and concomitant reactions is challenging, as products often contain multiple (meth)acrylates either as ingredient or as an impurity of the production process (De Groot and Rustemeyer, 2024). Cross-sensitisation between methacrylates and other methacrylates and acrylates occurs frequently. Cross-sensitisation between acrylates also occurs. However, primary sensitisation to acrylates is less likely to result in sensitisation to methacrylates (Aalto-Korte et al., 2010).

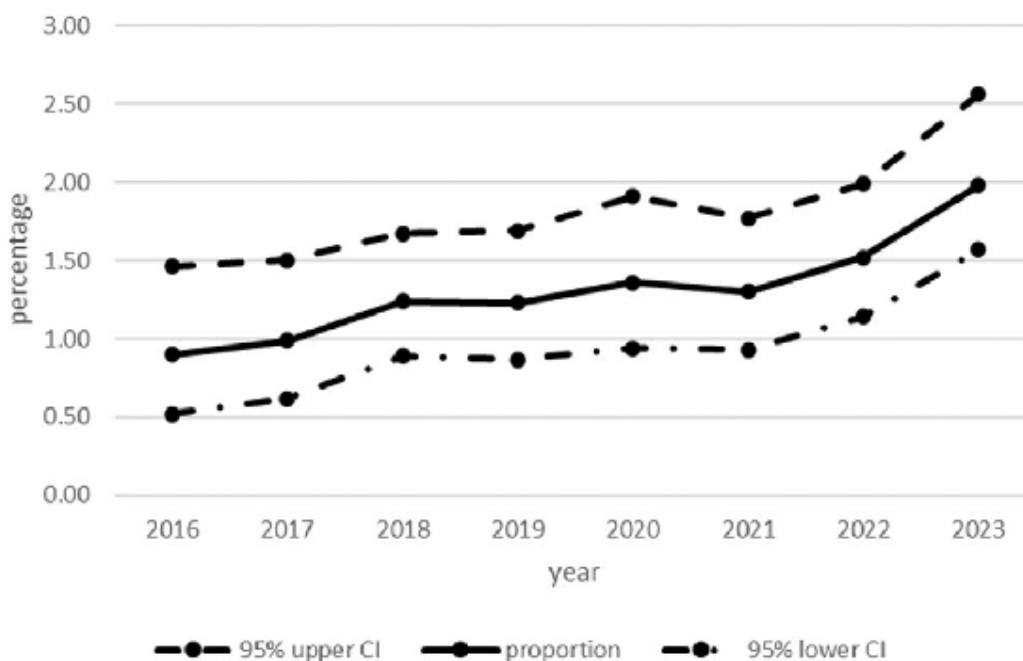
In the animal study by Rustemeyer et al. (1998), sensitisation to HEMA has been shown to lead to strong cross-reactions to other methacrylates. The cross-reaction potential of other methacrylates tested (MMA, HPMA and EGDMA) appeared to depend on their molecular similarity to other methacrylates. This is confirmed in human case studies where individuals reported positive patch tests for EGDMA, ethyl acrylate (EA), HEA, HPMA, THFMA, and MMA in addition to HEMA (De Groot and Rustemeyer, 2023, 2024). Several case studies have also reported individuals testing positive for HEMA, even when HEMA was not identified in the nail product responsible for allergic contact dermatitis (ACD). This phenomenon is further supported by a study on occupational exposure to (meth)acrylate-containing glues, where in only 2 out of 10 cases, HEMA was confirmed as the causative allergen (Aalto-Korte et al., 2008).

Thus, there are indications that cross-sensitisation occurs and substituting HEMA and di-HEMA TMHDC with other (meth)acrylates therefore does not prevent sensitisation to these and other (meth)acrylates.

3.3 *What is the incidence of skin allergies for different (meth)acrylates in consumers and nail technicians?*

It is difficult to answer this question based on the currently available data, as there is no routine testing available for most (meth)acrylates, and due to cross- and co-sensitisation it is hard to determine the exact (meth)acrylate causing the sensitisation. However, there is some data available for HEMA, which can be seen as a marker for (meth)acrylate allergy (De Groot and Rustemeyer, 2024). HEMA was officially added to the European baseline series to detect contact allergy in 2019, but there is also some data available from before this time. The percentage cases with positive reactions to HEMA in allergic patch tests relative to all sensitisation cases in a year across various European countries has increased between 2016 and 2023 as depicted in Figure 3 (Wilkinson et al., 2025). Nail cosmetics, resulting from both occupational and consumer exposure, were reported as the main cause in the majority of patients, who were almost exclusively female.

Figure 3 Combined European test centre data on the percentage of patients testing positive to HEMA each year with a link to nail cosmetics (current or past relevance) with 95% confidence intervals (CI) from Wilkinson et al., 2025).



There are indications that positive reactions to HEMA are less common among consumers compared to professional users of nail products (SCCS, 2018; De Groot and Rustemeyer, 2023; Kocabas et al., 2024; Steunebrink et al., 2024b). However, many sensitised professionals are also consumers of these nail products (SCCS, 2018; De Groot and Rustemeyer, 2023; Steunebrink et al., 2024b). In studies reviewed to date, HEMA was the most frequently reported positive methacrylate allergen in case reports, followed by HPMA and EGDMA (De Groot and Rustemeyer, 2024).

4 Regulatory gaps and policy recommendations

4.1 Is the current labelling requirement sufficient to reduce the exposure of consumers to HEMA, di-HEMA TMHDC?

The authors of the paper by Wilkinson et al. (2025) noted that restrictions of use for sensitising compounds, such as fragrance allergens, have led to the decrease of positive patch tests approximately 1-2 years later, which is currently not seen after the restriction for HEMA and di-HEMA TMHDC. Besides the still increasing percentage of cases with positive patch tests to HEMA seen by dermatologists each year, the online market survey performed by Steunebrink et al. in 2023 (2024a) on the Dutch website Bol.com indicated that HEMA and di-HEMA TMHDC are still the most common ingredients in nail products in the Netherlands. Although HEMA and di-HEMA TMHDC are being replaced in newly launched nail products, they remain the most common monomers present in nail products introduced to the European market after HPMA.

Additionally, the market survey indicated that only 30-40% of the nail products included the required warnings 'For professional use only' and 'Can cause an allergic reaction' on their label. On the label of products launched since December 2020 on the Mintel

database, the warning 'For professional use only' was not included on 22.5% of the labels.

Thus, despite the measures, HEMA and di-HEMA TMHDC are currently still common ingredients in nail products available to consumers. In addition, there are indications that the health risks are not effectively communicated and mitigated.

4.2 *What were the recommendations in the Assessment of regulatory needs (ARN) under REACH?*

The ARN of ECHA (2023a) concluded that a restriction of the use may be the preferred regulatory step to reduce the EU-wide risk of becoming sensitised from (meth)acrylates. The proposed restriction in the ARN 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 (OELs).

Preferably, the restriction should include all (meth)acrylates applied as monomers as all the substances in the group have potential skin sensitising properties and share a similar technical function and use profile. In the ARN it was also noted that the registrants of some of the (meth)acrylates already advise against the use of acrylic acid, methyl acrylate, methyl methacrylate, ethyl methacrylate, butyl methacrylate, isobutyl methacrylate, 2-ethylhexyl methacrylate, and octyl methacrylate for industrial and professional workers and for consumers in formulations with the unreacted monomer.

4.3 *Recommendations for measures under the CPR to increase the protection of consumers against the risk of sensitisation to (meth)acrylates*

Based on the presented data, there are indications that the current restriction as professional use only of nail products with HEMA and di-HEMA TMHDC is not effective in reducing the risk of sensitisation to (meth)acrylates for consumers and professionals. These products are still easily available to consumers; the required warnings are often missing and the number of positive patch tests for HEMA continues to increase for both consumers as well as professionals. Thus, restricting and labelling additional (meth)acrylates similarly to HEMA and di-HEMA TMHDC would likely not sufficiently reduce the risk of sensitisation. The following recommendations are suggested as additional measures that can be considered to increase the protection of consumers and professionals:

1. Strengthen enforcement of labelling and sales restrictions
 - a. Clear label placement: Mandate that warning label 'professional use only' be prominently displayed on the packaging, not just in the fine print.
 - b. Control online sales: Require online retailers to display regulatory warnings clearly on their website.
 - c. Restrict sales of professional-use-only products to consumers.
2. Expand ingredient restrictions and harmonised classifications
 - a. Expand the SCCS opinion: Include a broader range of non-regulated (meth)acrylates in a safety assessment considering the new data (preferably in a group approach).
 - b. Broaden substance restrictions: Considering the evidence for cross-sensitisation and substitution with other (meth)acrylates, the restriction should be expanded to include other monomers and oligomers with known or suspected sensitising properties.

3. Improve ingredient transparency
 - a. Standardised nomenclature: adapt the INCI names so it is clear which monomers are present in the final product.
4. Increase public and professional awareness
 - a. Consumer education: Launch educational initiatives about the risks of sensitisation, the potential for cross-sensitisation and safe use.
 - b. Professional training: Introduce training and certification for nail technicians on the safe handling and application of (meth)acrylates. There are initiatives for trade associations of nail technicians that could further facilitate training and knowledge, also to small businesses. Or there is the possibility of mandatory training through REACH restriction based on worker safety.
5. Enhance surveillance of health outcomes
 - a. Patch test registries: Establish or expand national patch test registries to monitor trends in (meth)acrylate sensitisation and to identify emerging risks quickly. This could also increase the information on the potential respiratory sensitisation of (meth)acrylates and potential for cross-sensitisation.
 - b. Reporting and feedback: Make it easier for consumers and professionals to report adverse reactions and advertise this. A trade association could also aid in the collection of these signals.
6. Address online and cross-border sales
 - a. International cooperation: Work with other EU member states (via for instance, FORUM REACH-EN-FORCE (REF) project) to harmonise enforcement, especially regarding online sales that can cross borders.

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