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Information supporting the need of a targeted assessment on Disperse Red 60

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Introduction

We, key actors of the European textile value chain, welcome the opportunity to submit comments on the proposal for the harmonised classification of Disperse Red 60 as a skin sensitisers 1A in CLP.

The present document aims to underline the social and economic implications of the proposed harmonised classification of Disperse Red 60 as skin sensitisers 1A in CLP Annex VI resulting from the currently ongoing proposed REACH restriction on skin sensitisers in textile and leather articles[1], which was submitted by the French Agency for Food, Environmental and Occupational Health & Safety (ANSES) and the Swedish Chemicals Agency (KemI) in June 2019.

To recall, the proposed restriction covers all substances with a harmonised classification as skin sensitisers in CLP Annex VI at present and in the future through the so-called dynamic link. Although the evaluation conducted by ECHA concluded in September 2020, those substances that have been classified as skin sensitisers in CLP between such date and the date of entry into force will be automatically included in the scope of the restriction via the dynamic link, without any previous assessment. This could also apply to Disperse Red 60, which may obtain its harmonised classification in the near future.

Based on the evidence provided hereinafter, we would like to call on the European Commission to request ECHA to conduct a risk assessment, as well as an analysis of the socio-economic implications of banning Disperse Red 60. This is in line with the semi-dynamic link approach propose by SEAC, which would allow “to consult affected stakeholders on, e.g., alternatives, relevant specific concentration limits to be applied or the relevance of the substance for the sector” prior to the inclusion in the restriction.[2]

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[1] Restriction on the placing on the market of textile, leather, hide and fur articles containing skin sensitising substances, https://echa.europa.eu/es/registry-of-restriction-intentions/-/dislist/details/0b0236e182446136.

[2] Committee for Risk Assessment (RAC) and Committee for Socio-economic Analysis (SEAC), September 2020, Opinion on an Annex XV dossier proposing restrictions on skin sensitising substances, p. 80, https://echa.europa.eu/documents/10162/16dbaec6-4563-6820-ec3d-c0f2124ce725.

Information on Disperse Red 60

1. Substance Identification

- CAS Number: 17418-58-5
- EC Number: 241-442-6
- Molecular formula: $C_{20}H_{13}NO_4$

2. Risk Assessment

2.1. Hazard profile

This substance does not present any harmonised classification under CLP, yet.

In its REACH registration, the substance is self-classified as a skin sensitiser (H 317) by the registering chemical companies.

2.2. Exposure (volumes)

Disperse Red 60 is registered in REACH with a total tonnage between 100 and 1000 t/y. We understand that approximately 90% of the substance alone is used in sublimation printing.

Considering that Chinese production of this dye alone was around 480.000 tonnes in 2019 and considering a standard 2% concentration used in the colouring application, we can estimate 24 million tonnes of dyed textiles being annually placed on the market by China containing Disperse Red 60. With China supplying one third of EU's apparel and textiles, we can assume that the presence of the dye is significantly relevant (in 2019, Belgium was reported as 1st importing country worldwide, while Netherland and Spain held the 3rd and 6th position, respectively). Its general presence in apparel on the market was also confirmed by the Swedish authorities in their 2020 report on substances found in their product controls/analysis.[3]

2.3. Risk from dyed/printed textiles

This dye has been on the market for at least 60 years and was first reported as commercial product in the Colour Index in 1963.

Despite its broad and long-term use, there is no epidemiological evidence of allergic reactions from contact to dyed textiles. On the contrary, there are two studies where, due to their wide use for long periods without observed allergic reactions by consumers, the dye has been taken as a typical example of a substance not causing allergic reactions from dyes/printed textiles.[4] [5]

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[3] Swedish Chemicals Agency, (2021), Kartläggning av farliga kemiska ämnen i textil, https://www.kemi.se/download/18.7f56491017e4bf6df761f7/1642175541797/Rapport-4-21-Kartl%C3%A4ggning-av-farliga-kemiska-%C3%A4mnen-i-textil-uppdaterad-22-01-14.pdf.

[4] Kawai Keiichi et al., Evaluation of Skin Irritancy of Fabric Dyed with Disperse Dye. THE JAPANESE JOURNAL OF DERMATOLOGY, 1992,102(11): 1411 - 1419.

[5] Hatch, K.L. & Maibach, Howard, (1999), Dyes as contact allergens: A comprehensive record. Textile Chemist and

Furthermore, Disperse Red 60 is not restricted/covered under most relevant assessment systems for apparel, i.e., AFIRM RSL, Standard 100 by OEKO-TEX®, bluesign®, and ZDHC.

In this regard, we also would like to refer to the decision of the Scientific Committee of Global Organic Textile Standard (GOTS), which has recently revised its position on skin sensitizing dyes[6]. At present, GOTS does not ban all skin sensitizing dyes but only those that have allergenic effects to consumers. GOTS states the following on page 37 of its Manual of Implementation[7]:

> ***A number of disperse dyes on the market are regarded as skin sensitisers (H317), however, they are not allergenic***[8]*. The use of these dyes is not prohibited as long as Occupational Health and Safety procedures such as safe handling are strictly followed as outlined in respected Safety Data Sheets. The following are some examples of sensitising disperse dyes (H317):* ***C.I. Disperse Blue 291, C.I. Disperse Yellow 54, C.I. Disperse Violet 93****.*

Finally, Disperse Red 60 falls not under the restriction of the EU Ecolabel and Nordic Swan Ecolabel, which allow the use of disperse dyes classified as skin sensitizers with H317 "provided they are supplied in dust-free formulations". Dust-free formulations are standard practice for disperse dyes, especially provided to reduce the exposure of the workers in the factories which use these chemicals (i.e., dyehouses and printing factories). **This shows that the restriction proposal restriction on skin sensitisers in textile and leather articles is more stringent than the EU Ecolabel, the Nordic Swan Ecolabel, the recommendation from the German Institute for Risk Assessment (BfR), as well as the most prominent certification and labelling schemes for textile.**

2.4. Comparison with other disperse dyes proposed to be banned

The restriction proposal on skin sensitisers in textiles and leather establishes a ban all disperse dyes with a harmonised classification as H317 in CLP. In addition, the Dossier Submitters proposed to ban a list of 24 other disperse dyes. These dyes only have a self-classification as skin sensitisers but (with the exception of Disperse Blue 291, Disperse Violet 93, and Disperse Yellow 64)[9] have been proven or are suspected of causing allergic contact dermatitis from textiles by consumers. Some of them also have additional properties of concern (e.g., Disperse Yellow 23 and Disperse Orange 149 are CMRs). These disperse dyes in scope[10] are no longer used by

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Colorist and American Dyestuff Reporter, Vol. 1, pp. 53-59; K. Kawai, T. Hosoya, et al, (1992), Skin Irritation of Disperse Dyes -Study on Dyed Fabric, Vol. 102(11), p. 1411.

6 Global Organic Textile Standard (GOTS), (March 2023), Version 7.0, https://global-standard.org/images/resource-library/documents/standard-and-manual/GOTS_7.0__SIGNED_.pdf.

7 Global Organic Textile Standard (GOTS), (March 2023), Manual For The Implementation Of Gots Based On The Global Organic Textile Standard (GOTS) Version 7.0, https://global-standard.org/images/resource-library/documents/standard-and-manual/Manual_for_the_Implementation_of_GOTS_V7.0__SIGNED_.pdf

8 See footnote 2.

9 Please note that Disperse Blue 291, Disperse Violet 93, and Disperse Yellow 64 were proposed to be removed from Table 2 by SEAC.

10 Except Disperse Blue 291, Disperse Violet 93, and Disperse Yellow 64.

responsible actors in the EU textile industry.

Disperse Red 60 never showed any similar concern compared to these dyes causing allergic contact dermatitis by consumers when exposed to textile dyed/printed with it. **The hazard classification does not translate into any actual consumer risk.**

3. Assessment of alternatives

3.1. Description of the use of Disperse Red 60

Disperse Red 60 is used for dyeing and printing apparel, sportswear, interior textiles, automotive textiles, and carpets, among other applications. It is specifically used for colouring of polyester as part of a three-colour system, for the exhaust dyeing process for polyester, and is especially important for sublimation printing, which is a standard process in polyester printing.[11]

3.2. Key properties of Disperse Red 60

Disperse Red 60 is the most used red dye, since it can be utilised as pure magenta or as the central magenta element for all CMYK (cyan, magenta, yellow, black) printing and dyeing recipes for polyester.

The dye is very often used as a component in dye mixtures that are recommended for pale to medium shades.

Disperse Red 60 has already been on the market for at least 60 years and is **well known for its durability, compatibility with the other components in the three-colour system, high light fastness and its excellent sublimation behavior in the printing application.** Besides that, Disperse Red 60 can cover excellently irregularities and differences in the fibre structure caused by knitting or stitches (Barré effect in fabrics), which means it levels the dyeing performance to even colouring.

3.2.1. Polyester dyeing/printing

Unlike other types of dyes, disperse dyes do not easily dissolve into water.[12] They have been specifically designed to dye polyester, which is a hydrophobic fibre.[13] Due to the material properties of polyester, polyester fibres are not easy to dye due to the material properties of polyester. Therefore, the dyeing process of polyester fibres needs an adapted very specific dyeing process, which is, today, related to the best technology, performed at high temperatures (> 130 °C) in a closed system. Under these application conditions in the “dye bath”, the dye

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[11] Sublimation is a specific process of printing that first involves printing onto a special sheet of paper and then transferring that image onto another material (usually polyester or a polyester mix). For further information, please refer to section 3.1.2.

[12] J.N.Chakraborty, 2014, Dyeing with disperse dye, in *Fundamentals and Practices in Colouration of Textiles*, p. 209-219, doi: 10.1016/B978-93-80308-46-3.50018-2.

[13] Required maximum water solubility of approximately 30 mg per litre are suitable, according to BfR, 6 July 2012, *Introduction to the problems surrounding garment textiles*.

particles are attracted by the hydrophobic fibres, migrate into the fibre matrix, and are retained in the polyester matrix after cooling down to ambient temperature. In printing system, where sublimation is used, the principle is the same, only the dye migrates into the substrate in gas form. Additionally, we want to emphasize that **there are no alternatives to disperse dyes to dye or print polyester.**

3.2.2. Sublimation behaviour during printing

As discussed, sublimation is a standard process in polyester printing. During dye sublimation, an ink is used, which consists of a solid, heat-sensitive dye (e.g., Disperse Red 60), which provides the colour, suspended in a carrier liquid. Under heat and pressure, the solid dye particles change into gas. The high temperature used in sublimation opens the pores of the polymer and allows the gas to enter. When the substrate is removed from the heat source and is allowed to cool, the pores close, and the gas reverts to a solid, becoming a part of the polymer. As such, the dye particles can no longer be removed and will not wash out. The process delivers permanent colours that are embedded in the substrate or fabric, rather than printed on the surface; the colour on the fabric will not fade or crack even after multiple washings.

In a three-colour system, the sublimation behavior of all components must match in order to obtain precise and reproducible shades. Disperse Red 60 has a sublimation behavior which very well suits the one of the other components of its specific colour set (see 3.1.4), making it an excellent dye for this kind of process.

3.2.3. High light fastness

Light fastness is a property that describes how resistant a dye is to be fading or colour change when it is exposed to light. The high energy of ultraviolet radiation in sunlight, in particular, accelerates the fading of colour. Disperse Red 60 has established itself as the main component in the described three-colour system also due to its very high light fastness.

3.2.4. Three-colour system

Dyes are used not only singularly but, often, in combination with other dyes, in order to obtain through mixing several different colour shades. Disperse Red 60 is the most used red dye as the central magenta element for all printing and dyeing recipes for polyester.

Disperse Red 60 forms an optimised three-colour system with Disperse Yellow 54 and Disperse Blue 56. In this process, the three primary colours are combined in different proportions to obtain all possible other colours/shades according to additive trichromy (e.g., green as a simple combination of yellow and cyan) as well as all shades of “basic” colours (e.g., a yellowish-green or a more orange-red). In printing systems, very often a black dye is also added, since it would be more expensive to create black from these three colours.

All these combinations need to be optimised during the dyeing process to obtain exactly the

desired colour shades.

Representation of the trichromatic process[14]:

Y: yellow
M: magenta
C: cyan

3.3. Evaluation of potential alternatives

There is no 1:1 replacement for Disperse Red 60, since no other dye has this shade and sublimation profile (needed for transfer printing).

There are other dyes which are claimed to be close to Disperse Red 60, but none of those have identical properties and none covers all current applications of Disperse Red 60. In particular they are not suitable to the sublimation printing, i.e., the main application. In addition, the following aspects should be considered:

- Disperse Red 60 is a true magenta (blue-shifted), while other reds would need to be "tuned" to give the same colour. This change would alter the final sublimed colour, and it may not be possible to match as desired due to differences in the sublimation rate and temperature.
- Any of these other dyes would require extensive changes in the production process and still not be able to replace Disperse Red 60 in terms of performance and corresponding quality of the final article. Other potential substitutes have in particular lower light fastness; thus, the quality and durability of the final product will be diminished.
- The manufacturing process might also require the use of more hazardous chemical(s) with corresponding extra health, safety and environmental controls to be in place.

4. Socio-economic assessment

4.1. Implications for the environment

4.1.1. Impact on production

Adaptations in terms of the production process would be required to accommodate higher quantities and additional component uses. It will increase production cost, complexity of dyeing, use of resources (e.g., water, energy efficiency), without guarantee to reach the same result.

[14] CMYK colour model - Wikipedia

Due to the established 'economy of scale', Disperse Red 60 is very competitive in terms of resource and cost optimisation. Any alternative disperse dye will have quite different properties and behavior on the textile, and it will surely cause relevant costs to replace such dye in the textile applications, if even feasible. In terms of performance, the risks for unlevel dyeing will be higher, which means that waste will be higher. Additionally, due to the expected lower light fastness levels, especially carpets, automotive textiles, interior textiles, etc. will have a decreased lifespan, i.e., they will be less durable products.

4.1.2. Impact on mechanical recycling

Mechanical recycling is currently the most robust, proven recycling process for textiles that is both economically viable and available at scale with the capacity for significant growth. It also has the lowest environmental impact due to limited energy use and because almost no water or chemicals are used in the recycling and creation of new yarns.

Mechanically recycled textiles are made of fibres and other raw materials that have been manufactured at different times and may contain substances proposed to be restricted or subject to future enacted restrictions, particularly if they are changing in a dynamic way. What can be found in textile waste that is recycled will most likely also be found in the recycled fibres and new textile products that are produced.

The textile recycling industry is currently experiencing a change of paradigm, moving from recycling of primarily post-industrial waste[15] to increasingly more post-consumer waste. Post industrial waste is very homogeneous in type and material composition, i.e., less diverse than post-consumer waste and generally produced within a recent period of time before the recycling process. The challenge of complying with a ban on Disperse Red 60 will be significantly higher with post-consumer waste, since this dye has been widely used for 60 years use for printing and dyeing of polyester in several shades (both alone or as part of the three colour system). Unlike post-industrial waste, post-consumer waste received for recycling may be as much as thirty years old, meaning it was originally produced long before many chemical restrictions were in place, including future restrictions dynamically linked with CLP harmonized classifications. We are, therefore, concerned that a future ban of Disperse Red 60 could severely impact mechanical recycling of polyester, especially in the case of recycling of post-consumer waste, which would significantly decrease resource savings enabled by textile-to-textile recycling. In addition, this will affect the recycling of other fibres, such as wool or cotton, which are increasingly blended with polyester to achieve optimised performance.

[15] Post-industrial waste is mainly composed of cutting clips, i.e., pre-consumer garment waste from garment production processes. Other types of industrial waste include yarn waste and hard waste (e.g., ring frames, winding, doubling).

4.2. Implications for human health

Without a doubt, a significant proportion of the EU population has been exposed to this dye daily and already at least six decades, with no allergic reactions from dyed textiles in the population ever reported in the available literature. **If this dye were the cause of cases of allergy by the consumer, then there would surely be substantial evidence available in terms of published cases with validated analyses.**

Any possible alternative, if available, will not be any safer.

In general, **consumer risk cannot simply be concluded based on the H317 classification**. A proper assessment has to be performed that takes into account all the parameters influencing an actual contact of the dye molecule with consumers' skin. Furthermore, such assessment should always include the relevant epidemiological information, if available since it provides real data on the actual relevance of the substance. This statement is supported by the comments submitted by Dr. [redacted], Dermatology Expert at the German Information Network of Departments of Dermatology (IVDK) and Professor at the University of Göttingen, to the public consultation on the restriction proposal (2783).

In light of this, we would like to refer in particular to a study[16] (available in attachment to this document) conducted by IVDK between 2009 and 2011. This study, which was done in collaboration with the association ETAD[17], consisted of two-year monitoring of all cases of skin allergic reactions reported to IVDK's dermatological centres (15 centres in total, across Germany). The objective was to ascertain the relevance of dyes currently in use in textiles as the cause of allergic contact dermatitis and, if necessary, to clarify the precise identity of any suspected dye. The protocol of the study was as follows:

Step 1: Collection of cases, followed by patch test to have evidence of a possible connection between the allergenic reaction and the presence of dye(s).

Step 2: Analysis of suspected garments. In case of detection of new suspected dyes, an additional patch test would be performed.

Yet, no cases came through the first step of the protocol over the two years. **The study confirmed the negligible relevance of commonly used textile dyes**. To note, this also confirmed the phase-out by the textile sector of problematic disperse dyes reported in Table 2 of the restriction proposal – excluding Disperse Blue 291, Disperse Violet 93 and Disperse Yellow 64 –, and for which we support a ban.

[16] Study on frequency and spectrum of contact allergy to textile dyes (ETAD, [redacted], 2011)

[17] The Ecological and Toxicological Association of Dyes and Pigments Manufacturers (www.etad.com)

4.3. Economic implications

4.3.1. Impact on production

The substitution of a disperse dye with another one is not just a question of colour: the substitute has to match the affinity for the fibre and provide the same performance in the final article in terms of colour strength at different fastness levels. The colour strength of a dye is its ability to impart colour to other materials, and it constitutes the most important parameter to test the optical quality of a sample of dyed fabric.

Additionally, polyester is often blended with other natural fibres, such as cotton (with 25-50% polyester) and wool (with 30% polyester) to achieve the optimised performance of these natural fibres in terms of, e.g., resistance and durability. Since each fibre requires a different type of dyes (typically, reactive dyes for cotton and acid dyes for wool), textiles with distinct blended fibres require a combination of dyes to ensure colour uniformity. **Any change in one dye mixture for one type of fibre will lead to a reformulation process for other dye mixtures for the other fibres used in the fibre blend, without the guarantee that colour uniformity and or similar performance would be achieved.**

Last but not list, dyes are produced in factories that are specially designed to manufacture them. In fact, only a small number of factories have the permits and licenses to manufacture Disperse Red 60, because proper safe management of the starting materials is required.

For any other potential alternative dyes, special production lines would have to be installed with even higher capacities, as alternatives need to be used in higher volumes. This would not only **require production changes for all chemical companies** producing disperse dyes, but it would also require extensive work in several thousands of textile mills.

Based on all these considerations, the assumption that the cost of a ban of disperse dyes could be negligible is not accurate. The following elements need to be analysed: the cost associated with the change of production processes, reformulation costs, the qualitative and performance differences on the finished products, not to mention the increased price of alternative products, when available. A ban would cause severe economic disruptions, particularly when, as in this case, a dye represents a quite relevant segment of the market.

4.3.2. Substitution of polyester

Polyester plays the most prominent role in the global textile chain and provides a unique performance. Substitution of polyester by other fibres is, therefore, not possible. Specifically, polyester offers the following series of advantages:

- The fibre and the clothes from polyester are resistant to staining, naturally water-repellent, and quick-drying. Substitution by other blends would mean reduced service life and lower performance;

- Polyester fibres are strong, durable and have excellent wear and abrasion resistance;
- Polyester is resistant to heat and chemical degradation, which constitutes a key safety feature in technical textile applications (e.g., automotive). It is resistant to acids, oxidizers such as hydrogen peroxide and most solvents;
- Polyester has a high UV resistance, avoiding fading of shades when exposed to sunlight. This is particularly relevant for outdoor textile applications (e.g., outdoor apparel, outdoor upholstery/furniture);
- Polyester can retain crease for a longer duration and does not wrinkle easily. These properties make it ideal for everyday wear;
- Polyester is easy to wash and does not shrink when washed;
- It has also high resistance to microorganisms and insects;
- Polyester is recyclable. Nowadays, many popular sportswear brands use recycled polyester as a sustainable alternative.
- Polyester has a lower price compared with other fibres. E.g., the price development of polyester and cotton in recent years shows that polyester was usually 60% cheaper than cotton, with a maximum of ca. 80% and never below 20%.[18]
- Depending on the spinning process polyester fibres can be spun in a high variety of different fibre materials (fibres with low titres up to high titres, i.e., from microfibres to coarse fibres for coarse woven structures like geotextiles, fibres with tensile strength up to almost steel strength till soft feeling apparel fibres, fibres with a large fibre surface area for filter material as well as hollow fibres for thermal insulation, etc.).

In summary, polyester shows a unique performance spectrum, which cannot be achieved by other fibre materials (see the following table). Therefore, substituting polyester with another fibre (e.g., a natural fibre) would cause problems for applications where specific resistance and durability are required and raise the issue of the cultivation of the necessary plants, which rely on production methods already regarded as environmentally unsustainable. Conventionally grown cotton, for instance, is regarded as unsustainable due to its high water consumption and pollution, soil degradation, greenhouse gas emissions, and the use of harmful pesticides and fertilisers.[19]

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[18] Fibre2fashion, Cotton Vs Polyester Prices from 2015 to 2019 | Rankings, https://www.youtube.com/watch?v=HCJBOlxwdDM.

[19] Karst Kooistra and Aad Termorshuizen, April 2006, The sustainability of cotton: Consequences for man and environment, *Science Shop Wageningen UR*, https://edepot.wur.nl/17214.

Table 1 – Comparison of polyester with main synthetic fibres and cotton

	Poly-ester	Poly-amide [20]	Viscose	Cotton	Wool	Silk	Polyacryl
Application variety	**+++**[21]	**++**	**++**	**+**	**+**	**o**[22]	**+**
Softness	**+++**	**+++**	**+++**	**++**	**+++**	**+++**	**+++**
Pleasant to skin	**+++**	**+++**	**+++**	**+++**	**+**	**+++**	**+**
Tensile strength	**+++**	**++**	**++**	**+**	**+**	**+**	**++**
Crease resistance	**+++**	**++**	**+**	**-**	**o**	**-**	**+**
No felting	**+++**	**+++**	**+++**	**+++**	**-**	**++**	**+++**
Dimensional stability (i.e., no shrinkage)	**+++**	**+++**	**-**	**-**	**o**	**++**	**++**
Chemical resistance	**+++**	**++**	**+**	**+**	**o**	**-**	**++**
Abrasion resistance	**+++**	**++**	**+**	**+**	**o**	**-**	**++**
Light resistance	**+++**	**++**	**++**	**++**	**++**	**o**	**+**
Heat resistance	**++**	**+**	**+**	**+**	**+**	**+**	**+**

[20] The most relevant polyamide fibre types are Polyamide 6 = PA6 (e.g., Perlon, Dederon, ...), and Polyamide 6.6 = PA6.6 (e.g., Nylon, Timbrelle, ...). Nylon has a lower specific gravity than other fibres. These properties make itvery suitable for stockings, parachute fabrics, underwear, carpets, etc.

[21] Due to the basic polymer material and its properties a high variety of performances can be created via the spinning process.

[22] Legend: "**+**" means advantage;
"**o**" means indifferent, i.e., no advantage nor disadvantage;
"**-**" means a clear disadvantage.

Isolation	**+++**	**+++**	**-**	**o**	**+++**	**++**	**+++**
Temperature management	**-**	**-**	**o**	**+**	**+++**	**+++**	**-**
Water repellence	**+++**	**++**	**-**	**-**	**+**	**-**	**+**
Moisture absorbance	**-**	**-**	**++**	**+++**	**+++**	**+**	**-**
Easy to dry	**+++**	**++**	**o**	**-**	**o**	**+**	**++**
Easy to care	**+++**	**++**	**++**	**o**	**-**	**-**	**++**
Antistatic	**-**	**-**	**+**	**+**	**o**	**o**	**-**
Shine	**+**[11]	**+**[11]	**+**[11]	**-**	**-**	**++**	**+**[23]
Material recyclability	**++**	**++**	**+**	**o**	**o**	**-**	**+**

[23] Easy to create via the geometry of the yarn spinning nozzles.

4.3.3. Polyester as most demanded fibre worldwide

Polyester has become the most used and the most preferred fibre by the global textile industry. With an annual production of around 58 million meters, **polyester accounts for roughly half of the fibre market overall and about 80% of all synthetic fibres.**[24]

The end uses of polyester fibre are segmented into apparel, home furnishing, automotive, construction, filtration, and personal care and hygiene applications. The production of apparel was around 50% of the total polyester fibre end-uses in 2016, while home furnishings constituted the second-largest end-use sector, accounting for about 25% of the polyester production.[25]

At present, polyester is the most popular fibre for clothing. It offers options in a vast range of consumer demands – from higher-end fashion products to everyday apparel to sportswear and activewear. Polyester fibres can be used in a vast array of garments – from pants, shirts, and jackets to gloves, hats, and undergarments. In addition, polyester is used for protective equipment due to its tensile strength, durability, and high resistance to, e.g., chemicals.

In the field of technical textiles, high-performance properties, high resistance, and/or durability is of relevance, too (e.g., seat belts, filters, roof construction, etc.).

In addition, **polyester is often blended with natural fibres**, such as cotton (with 25- 50% polyester) and wool (with 30% polyester) to achieve optimized **performance** in terms of, e.g., resistance and durability.

4.3.4. Impact on mechanical recycling

A representative testing of recycled materials can be carried out only on materials after reprocessing and would have to include, again, all restricted substances since a batch of recycled material can contain material from multiple sources. A failure at this stage means the destruction of, e.g., a single lot of 8000 kgs of already recycled material, which is a significant loss of sunk costs by recyclers. A restriction on Disperse Red 60 in recycled materials would require recyclers

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[24] Textile Exchange Preferred Fiber Material Market Report 2020, p. 61, https://www.textileexchange.org; Textile Exchange, 2019, Preferred Fiber & Materials Report, https://store.textileexchange.org/product/2019-preferred-fiber-materials-report/.

[25] Global Polyester Market Outlook till, 2020, https://www.fibre2fashion.com/industry-article/7901/global-polyester-

to remove any materials potentially dyed with this substance to mitigate the risk of compliance failures after reprocessing, an incredibly difficult task given the wide number of color shades it has historically been used to produce.

5. Additional considerations: Inconsistencies with the Generic Risk Assessment (GRA) approach

We would like to highlight that **skin sensitisation does not belong to the list of hazards that are proposed to be part of the extended general approach to risk management (GRA),** according to recent CARACAL documents issued by the European Commission, as well as the questionnaire for the ongoing public consultation on the REACH review. This provides in our view an additional argument NOT to ban substances solely based on a self- or CLP- classification as skin sensitiser, and for which there is no concern for consumer health. It is important to keep in mind that for dyes currently in use by responsible textile producers, **self- or CLP classifications as skin sensitiser are relevant at the workplace, to protect workers during direct handling of these substances at dyeing houses**. Without a specific assessment, it cannot be directly linked with consumer exposure from dyed polyester articles.

6. Conclusions

As key actors of the European textile value chain, we support the harmonised classification of Disperse Red 60 as sensitiser / H317 (as chemical), but we object to a subsequent ban only based on this classification.

A ban of Disperse Red 60 would be **considerably disproportionate** given the absence of evidence of consumer concern, the absence of alternatives at industrial scale for the intended applications and their notably reduced performance, the contribution of this substances to resource optimization during the dyeing process, and the significant socio-economic implications of such ban.

We, therefore, call on the European Commission to request a risk assessment, as well as an analysis of the socio-economic implications of banning Disperse Red 60.

EURATEX *is the voice of the European textile and clothing industry and works to achieve a favourable environment within the European Union for design, development, manufacture and marketing of textile and clothing products. The EU-27 textile and clothing industry, with around 150,000 companies employing 1.3 million workers, is an essential pillar of the local economy across many EU regions.*

ETAD *is the Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers. It is based in Switzerland, representing internationally active companieslocated across the globe.*
EUCTL *is the Association of European Chemistry for Textile and Leather representing more than 70 % of textile and leather chemical producers in Europe.*

ETAD and EUCTL *represent many of the European and world-leading producers of dyes and process chemicals for the textile and leather industries. Their members have been at the forefront of the phase-out of substances known to be of concern through contributing and commenting to voluntary certification schemes such as OEKO-TEX®, bluesign®, GOTS®, ZDHC, ICEC.*