

Att. To: ECHA

OBJECT:
PUBLIC CONSULTATIONS FOR THE RESTRICTION PROPOSAL FOR
“PFAS”

Dear Sirs,

Our company has business in the Italian territory and in few other foreign EU countries; we supply chemicals, specialties and auxiliaries, to be used in the textile industry, leather finishing, chemical industry, plus a partial business in the paint industry.

Within the series of special chemicals that we handle, we have a long history with the Fluorinated polymers for all the applications where water-oil-grease-stain resistances are mandatory.

From all the experience and knowledge we can have with these substances, we consider that the restriction proposal, like it is written and is currently under the approval process, it can bring several disadvantages to a large part of the EU industries.

In particular, regarding the country where we operate, we would like to submit several comments and descriptions of a potential situation for the future.

We consider this restriction, if approved, will be a huge change for the industry in EU and with a biggest impact if compared to the switch we already saw few years ago, from the long chain fluorinated products (also known as “C-8”) to the short chain generation of the Fluoropolymers (known as “C-6”; or “C-4” in few cases)

As additional information, our business is already active in the Fluorine-free products market too. We are selling them, already working with them and even had some success but we already know that this new generation of chemicals (= Fluorine free) can't reach all the performances currently obtained by using the fluorinated polymers.

Fluorine free products can be based on different chemistry; each of them bring problems or points of difficulties in the actual operativity inside the factories etc.

- ∞ Waxes and paraffines: weak results in several cases plus easy contaminations by formaldehyde or other chemicals currently forbidden or restricted. Resistance to washes in water are generally poor; the resistance to dry cleaning is extremely poor or null.

- ∞ Silicone based: medium results for the water repellency and not over all types of fibres. They can have some wash resistance in water, only if added with additives like crosslinkers. No dry clean resistance is obtained. This type of chemicals also give some shades changes on the dyed fabrics plus a soft touch to the treated materials. These features are not always appreciated by the clothing manufacturers and in some cases they bring to other problems during all the production process steps.
- ∞ Polymers based on acrylates or similar chemistry: there is industrial evidence that some of them are performing, for water repellency only, as explained. At the same time each substrate required a certain amount of time for making all the tests and to reach accordance with the required performances by the brands and clothing producers.

All our comments and industrial situations, based on our direct knowledge are summarized below:

TEXTILE INDUSTRY – final applications: clothing, garments, fashion

Substrates: Various (cotton, denim, polyester, nylon, blends like cotton-polyester, wool, silk, blends of wool, viscose, linen and several others)

Required performance:

- ∞ Full water repellency;
- ∞ Oil repellency, meant to be also as stain resistance, grease resistance;
- ∞ High washing fastness both for usual home laundry and dry-clean treatments;
- ∞ Compliance with the highest quality fashion brands requirements.

The use of Fluorinated polymers always allowed the fabrics producers to reach all the mentioned points; especially for the stains and oils resistances, the Fluorine chemistry is the best known source to obtain the needed performances.

Probably the unique source of performances, due to simple chemistry matters from the fluorine chemical element itself.

Alternative products and their weak points:

Fluorine free items can be used, but they are limited to the water repellent performance.

Weak points of Fluorine free products:

- ∞ Fluorine free chemicals can't bring any resistance to oils, stains, grease or other oily fluids.
- ∞ All the resistances to washes, rubbing, specific resistances asked by the final customers, they can be eventually reached by amending all industrial recipes, by changing the additives and/or other chemicals or in worst cases by changing even the whole industrial process. This means loss of competitiveness for the industry, longer times of new developments for the process etc.
- ∞ Fluorine-free products are not universal/versatile like the Fluorocarbons: each substrate, each type of fibre needs different
- ∞ On treated fabrics, the effect knowns as "chalk marks" is common and this is a problem that brands and clothing manufacturers absolutely need to avoid.
- ∞ Change of shades, softening effects are not always appreciated or accepted by the final clothing manufacturers, including brands.
- ∞ At the current status of the textile industry, the Fluorine free industrial use already started in 2015/2016. In the last 7 years so, the technology of the fluorine free products got better but it is already clear that the full ban of fluorinated products will not be replaced by new generation of products, for many applications

TEXTILE INDUSTRY – final applications: fabrics for furnitures, tablecloths and similar articles.

Substrates: Mainly synthetic fibres and materials (Polyester as example)

Required performance:

- ∞ Full water repellency;
- ∞ Highest level of oil repellency, including highest resistances to dirt, stains, grease.
Additional high resistances to specific substances considered as dirt: coffee, tomato sauce, ketchup, soft drinks, inks as well.
- ∞ Highest washing fastness both for usual home laundry treatments;
- ∞ Dry clean resistance
- ∞ Easy care of the articles and materials.

Up today, from a many years long experience, the use of Fluorinated polymers allows the producers to reach all the mentioned performances;

Again, the current productions are all performing because of the historical use of Fluorinated polymers, due to the chemical features of the fluorine.

Alternative products and their weak features:

In case of simple water repellency performance, there is the chance to use fluorine free products, but the industrial evidence already shows several weak point of the new fluorine free generation of chemicals.

Weak points of Fluorine free products:

- ∞ Fluorine free chemicals can't bring any resistance to oils, stains, grease, other oily fluids.
- ∞ All the resistances to washes, rubbing, specific resistances asked by the final customers, they can be eventually reached by amending all industrial recipes, by changing the additives and/or other chemicals.
- ∞ Fluorine-free products are not universal/versatile like the Fluorocarbons: each substrate, each type of fibre needs different recipe and chemical additives. This means an increase of numbers of variants
- ∞ On treated fabrics, the effect knowns as "chalk marks" is common and this is a problem that brands and clothing manufacturers absolutely need to avoid. Especially in the case of high added value articles like high quality furnitures, this effect is
- ∞ Change of shades, softening effects are not always appreciated or accepted by the final articles manufacturers, including brands.

TEXTILE INDUSTRY – technical textiles: final application in shoe industry, technical garments, outdoor, protective equipments (including army equipments and cloths)

Substrates: synthetic fibres like polyamide, polyester. Aramidic fibres.

Required performance:

- ∞ Full water repellency;
- ∞ Highest resistance to precise tests at water resistance: Bundesman test, Wicking test, Bally stress test.
- ∞ Highest level of oil repellency, including highest resistance to dirt in general
- ∞ Additional resistance to specific chemicals or substances (alcohols, gasoline, acids)

Since many years, the use of Fluorinated polymers allowed the producers to reach all the mentioned performances;

In specific cases of this textile category, it is well known the fact about Fluorinated polymers are the unique suitable technology to achieve these performances: in fact until this year, specific derogations were active to allow industry to still use even the old technology of the long chain fluoropolymers “C-8”.

Similar derogations will be necessary, from our point of view, to continue to use current C-6 items.

Alternative products:

The current industrial practice shows that Fluorine free items are not suitable to cover the needed productions and not suitable to reach the required performances.

Weak points of Fluorine free products:

- ∞ Fluorine free chemicals can't bring any resistance to oils, stains, grease, other oily fluids.
- ∞ Fluorine free chemicals are not giving performances in terms of gasoline resistance, acids or alkali resistance, corrosive chemicals resistance etc.
- ∞ For other technical articles or for shoes, the fluorine free items are very limited in final results on treated materials, in terms of resistance to water permeability, checked with specific tests (stress tests under water, water column resistance, capillarity tests etc.)

TEXTILE INDUSTRY – textiles for awnings, especially outer awnings.

Substrates: synthetic fibres (acrylics, polyester)

Required performance:

- ∞ Full water repellency;
- ∞ Highest resistance to precise tests at water resistance: Bundesman test, Water column tests, stress tests.
- ∞ Highest level of oil repellency, including highest resistance to dirt in general
- ∞ Highest compatibility in case of coatings with other additives during the finishing process.
- ∞ Sort of self cleaning property
- ∞ High resistances to atmospheric events including highest resistance to light/dark cycles, heavy rains etc.

Alternative products and their weak points:

Industrial tests already happened and several R&D companies are studying this application to find suitable alternatives; Fluorine free, up today, are not suitable to cover the needed productions and not suitable to reach the required performances:

There are problems for high performance awnings; the resistance to weather impacts is limited and/or not sufficient to replace correctly the usual fluorine treated materials.

Depending on the applied recipe, the materials can show some performance but the balance between all the required features, this is very tough to be reached.

In addition, when awning producers must guarantee long shelf life for their articles, the lack of performances with the fluorine free products is quite clear.

The correct properties are lasting less in time and it is not even easy to renew the performances; this renewal is instead quite easy by using specific products as maintenance, even based on fluorocarbons in solvent systems, for the easy curing at room temperatures. No Fluorine free polymers are today suitable for solvent systems and for low curing process.

TEXTILE INDUSTRY – NON WOVEN –

final application in shoe industry, technical garments, outdoor, protective equipments.

Substrates: synthetic fibres.

Very similar to the same matter of the textile materials for shoes, technical and protective wear.

Required performance:

- ∞ Full water repellency;
- ∞ Highest resistance to precise tests at water resistance: Bundesman test, Wicking test, Bally stress test.
- ∞ Highest level of oil repellency, including highest resistance to dirt in general
- ∞ Additional resistance to specific chemicals or substances (alcohols, gasoline, acids)
- ∞ Resistance to peel-off in case of coating with compounds of other resins.

Since many years, the use of Fluorinated polymers allowed the producers to reach all the mentioned performances;

In specific cases of this textile category, it is well known the fact about Fluorinated polymers are the unique suitable technology to achieve these performances: in fact until this year, specific derogations were active to allow industry to still use even the old technology of the long chain fluoropolymers “C-8”.

Similar derogations will be necessary, from our point of view, to continue to use current C-6 items.

Alternative products:

The current industrial practice shows that Fluorine free items are not suitable to cover the needed productions and not suitable to reach the required performances.

Weak points of Fluorine free products:

- ∞ Fluorine free chemicals can't bring any resistance to oils, stains, grease, other oily fluids.
- ∞ Fluorine free chemicals are not giving performances in terms of gasoline resistance, acids or alkali resistance, corrosive chemicals resistance etc.
- ∞ For other technical articles or for shoes, the fluorine free items are very limited in final results on treated materials, in terms of resistance to water permeability, checked with specific tests (stress tests under water, water column resistance, capillarity tests etc.)
- ∞ The coated fabrics with resins over the fluorine free layer, it is not resistant to the peeling off: adhesion of fluorine free to additional coated layers is always much weaker than the layers over traditional fluorocarbon coating.

TEXTILE INDUSTRY – NON WOVEN: final application in automotive

Substrates: Mainly synthetic fibres/materials (polyester, recycled polyester, viscose)

Required performance:

- ∞ Full water repellency;
- ∞ Highest level of oil repellency, including highest resistances to dirt, stains.
- ∞ Highest resistance to gasoline, diesel, old engine oil, acids, alkali.

Fluorinated polymers allow the producers to reach all the mentioned performances;

Current productions are all performing because of the historical use of Fluorinated polymers, due to the chemical features of the fluorine.

In case of simple water repellency performance, there is the chance to use fluorine free products, but the industrial evidence already shows that none oil-repellency can be achieved, no diesel repellency, no gasoline repellency etc.

The automotive requirements are severe on these types of resistances.

Several nonwovens used in the automotive sector must be repellent to hydrocarbon fluids that are present in the engine area. Usually these nonwovens are coupled with moulded panels to give sound absorption properties in specific car components.

Common hydrocarbon fluids are: Engine oil, Diesel, Brakes oil, Gasoline, etc.

The difficult grade to obtain a repellence is: Gasoline > Diesel > Engine Oil > Water

(more difficult: Gasoline, more easy: Water)

These nonwovens must satisfy O.E.M. specifications:

e.g. Engine Oil repellency > 90 hours (!) etc.

According to our experience and after many trials, at the moment it is not possible to satisfy these parameters without the use of fluorine additives.

Based on a long experience in testing with fluorine free additives of different suppliers we can assert that, at today, is not possible to obtain a Oil/hydrocarbon fluid repellence using a fluorine free additive but it is only possible to obtain a water repellence.

By the experience of many chemicals companies and suppliers, all these confirm us that, it is not possible to obtain a hydrocarbon fluid repellence with fluorine free additives.

Since there is no other additives available that can fulfill the Engine Oil repellency, the prohibitions/restrictions of fluorine additives use in automotive application where Oil repellency is needed, it can lead to severe risks involving the public safety.

In fact, if these materials used in engine covers would not be oil repellent, even small losses (like drops of fuel or lubricating oils coming from gaskets) could impregnate little areas of the engine cover. When the engine would then started and increases its temperature, the engine cover impregnated of hydrocarbon could lead to fire ignition.

TEXTILE INDUSTRY – NON WOVEN: final application in filtration (air filtration, liquid filtrations, osmosys membranes)

Substrates: Mainly synthetic fibres/materials

(polyester, recycled polyester, polypropylene, polyamide)

Required performance:

- ∞ Full water repellency;
- ∞ Highest level of oil repellency, including highest resistances to dirt, stains.
- ∞ Highest resistance to various nature aerosols, gasoline, acids, alkali.
- ∞ Breathability of treated materials

Fluorinated polymers allow the producers to reach all the mentioned performances;

The productions historically made up today, they are all performing because of the historical use of Fluorinated polymers, due to the chemical features of the fluorine.

Alternative products:

Fluorine free products can be used in some cases, but not all of the new products natures are suitable for this special final application.

In addition, several industrial tests and evidence already shows that fluorine free are not bringing any oil-repellency and other types of resistances when applied onto the filtration articles. Especially the filters used in severe conditions, they are not performing in the same way of the traditional fluorocarbons.

There is an important lack of oil-repellency and breathability/permeation problems in the non-fluorinated articles.

TEXTILE INDUSTRY – NON WOVEN: final application for carpets

Substrates: Mainly synthetic fibres/materials
(polyester, recycled polyester, polypropylene)

Required performance:

- ∞ Full water repellency;
- ∞ Highest level of oil repellency, including highest resistances to dirt, stains.
- ∞ Highest resistance to various nature aerosols, gasoline, acids, alkali.
- ∞ Compatibility with several additives used in this industrial application. (flame retardants etc.)

Fluorinated polymers allow the producers to reach all the mentioned performances;
The productions historically made up today, they are all performing because of the historical use of Fluorinated polymers, due to the chemical features of the fluorine.

Alternative products:

Fluorine free products can be used in some cases, even if the final performances are lower than the fluorocarbons features.

Oil repellency and dirt protection are absolutely important.

Several industrial tests already shows that fluorine free are not bringing any oil-repellency and other types of resistances when applied onto carpets articles.

Additional, the fluorine free items are showing less resistance to specific events, like fires occurring. The compatibility of fluorinated polymers with flame retardants auxiliaries, it is stronger than the compatibility given by fluorine free products.

LEATHER INDUSTRY (Finishing) – final applications: clothing, garments, fashion

Substrates: Leather; or for similar situation: synthetic leather, textiles substrate with polyurethane coatings, microfibres coated to create Alcantara style materials.

Required performance:

- ∞ Full water repellency;
- ∞ Oil repellency, meant to be also as stain resistance, grease resistance;
- ∞ Compliance with the highest quality fashion brands requirements.
- ∞ High Rubbing fastness and high material resistances after all industrial process.
- ∞ High compatibility with all the other chemicals used in the delicate process of the leather finishing.

The use of Fluorinated polymers allows the fabrics producers to reach all the mentioned points; especially for the stains and oils resistances, the Fluorine chemistry is the best known source to obtain the needed performances, included perspiration and transpirability.

Alternative products:

Fluorine free can be used, but they are limited to the water repellency performance.

Weak points of Fluorine free products:

- ∞ Fluorine free chemicals can't bring any resistance to oils, stains, grease, other oily fluids.
- ∞ All the resistances to rubbing, specific resistances asked by the final customers, they can be eventually reached by amending all industrial recipes, by changing the additives and/or other chemicals.
- ∞ Fluorine-free products are not universal/versatile like the Fluorocarbons: each substrate, each type of industrial process needs different products to be applied.

- ∞ Change of shades, softening effects are not always appreciated or accepted by the final clothing manufacturers, including brands.
- ∞ At the current status of the textile industry, the Fluorine free industrial use already started in 2015/2016. In the last 7 years so, the technology of the fluorine free products got better but it is already clear that the full ban of fluorinated products will not be replaced by new generation of products, for many applications

LEATHER INDUSTRY (Finishing) – final applications: automotive

Substrates: Leather; or for similar situation: synthetic leather, textiles substrate with polyurethane coatings, microfibres coated to create Alcantara style materials.

Required performance:

- ∞ Full water repellency;
- ∞ Highest level of oil repellency, including highest resistances to dirt, stains.
- ∞ Highest level of resistance to rubbing, scratches.
- ∞ Highest resistance to gasoline, diesel, old engine oil, acids, alkali.
- ∞ Compliance with the highest quality automotive brands requirements.
- ∞ High compatibility with all the other chemicals used in the delicate process of the leather finishing.

Fluorinated polymers allow the producers to reach all the mentioned performances;

Current productions are all performing because of the historical use of Fluorinated polymers, due to the chemical features of the fluorine.

Alternative products and their weak points:

In case of simple water repellency performance, there is the chance to use fluorine free products, but the industrial evidence already shows that none oil-repellency can be achieved, this is also associated with the lack of resistances to dirt and stains.

The automotive requirements are severe on these types of resistances.

In addition, fluorine free are more difficult to be applied in combination with bonding agents and other several resins for the fibres. Even usual application methods needs more and more tests to check the potential recipes.

PAPER INDUSTRY (printed papers, coated) – final applications: furnitures for houses, boats, general buildings, paper wall boards)

Substrates: Paper

Required performance:

- ∞ Full water repellency;
- ∞ Highest level of oil repellency, including highest resistances to dirt, stains.
- ∞ Anti-fingerprints effect
- ∞ High compatibility with all the other chemicals used in the delicate process of the paper coating/treatments

For this specific application, the use of fluorinated polymers combine the good water/oil repellency with other particular features, like the anti-fingerprints property and the paper release.

Considering some of these papers are going to be used even in home kitchens or similar final use, it is mandatory for the treatment process to bring high oil and grease resistance.

Alternative products and their weak points:

There is the chance to use fluorine free products (silicone based or polymer based) for the more simple articles, where water repellency is necessary and oil repellency is less important; anyway, in all the articles where fingerprint effect must be avoided, where high grease resistance is necessary, the fluorine free applications are showing many limits and poor results.

Also, fluorine-free items can't guarantee the correct release property to the treated papers when they are stocked in big rolls internally to warehouses and factories for long time.

In addition, fluorine free are more difficult to be applied in combination with bonding agents and other several resins for the fibres. Even usual application methods needs more and more tests to check the potential recipes.

PAPER INDUSTRY (printed papers, coated) – final applications: special papers for food, pet-food, or other similar conditions.

Substrates: Paper

Required performance:

- ∞ Full water repellency;
- ∞ Highest level of oil repellency, including highest resistances to dirt, stains, grease and all oily substances.
- ∞ High compatibility with all the other chemicals used in the delicate process of the paper coating/treatments

For this specific application, the use of fluorinated polymers combine the good water/oil repellency with other particular features, like full resistance to grease, oils, fatty substances.

Alternative products and their weak points:

There is the chance to use fluorine free products (silicone based or polymer based) for the more simple articles, where water repellency is necessary and oil repellency is less important; anyway, For a simple reason coming from the chemical nature of the Fluorine elements plus all the chemical families related, there is not a chance to obtain high oil and grease resistances, without Using fluorinated polymers.

There is actually a change in the industrial process for these applications, where the non-use of fluorocarbons is already existing.

However, it is already an evidence that fluorine free treated paper don't have the same features of old technology and in some cases the differences are huge.

In addition, fluorine free are more difficult to be applied in combination with bonding agents and other several resins for the fibres. Even usual application methods needs more and more tests to check the potential recipes.

PAINTS INDUSTRY and PROTECTIVE PRODUCTS (for coatings, surfaces protection) – final applications: constructions, buildings, floors and tiles, boats industry,

Substrates: Concrete, cements, marble, ceramics (tiles), stone, wool, glass-fibres.

Required performance:

- ∞ Full water repellency
- ∞ Resistance to all severe weather conditions
- ∞ Highest level of oil repellency, dirt, stains, dust.
- ∞ Resistance to other aggressive products, including acids, solvents, alcohols

- ∞ High compatibility with all the other chemicals used to produce the paints and the special protective agents

For this specific application, the use of fluorinated polymers combine the good water/oil repellency with very high resistances to all substances that can hit the surfaces, including some severe weather conditions.

Alternative products and their weak points:

For this very special industry, the evidences and the tests made with other types of polymers, they already brought the conclusion that the fluorinated polymers are the only suitable chemical family for these applications.

There is not any other product series that allows to cover the very specific requirements for this type of industry and applications.

Looking at all these informations that we can get from our current business, customers, knowledge of all these industrial processes, our humble opinion and humble request is to reconsider the details in the restriction proposals. It is a real possibility that a so structured restriction can bring a shock to the markets, to the factories and to the base of all the factories working into the finishing and production of textiles, leathers and maybe other applications that are out of our known business and that we did not mention in this document.

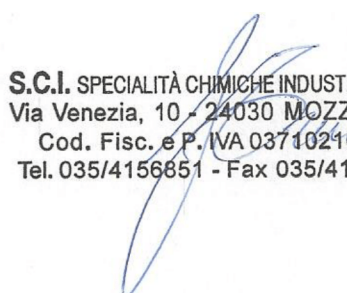
The new generation of additives is not suitable, not ready to replace all the special applications currently existing in EU (or even in countries outside of Europe); the technology is not mature to replace everything and not ready to allow a good switch without any damage to the substrate of industries that EU territories have.

The kind of prevision we could think of, it is about a huge impact on the European industry, with the real risk of losing thousands of jobs and companies/factories, not only in our direct country but in the whole European territory/community.

That would have obviously a negative impact on the populations, with the increase of social crisis costs etc.

Best regards

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