

All About “PER” ... in a nutshell

Today’s number one dry-cleaning solvent in Europe

The substance perchloroethylene, simply called PER, has been a dry-cleaning solvent in Europe for more than 70 years. Today, it is still the number one substance for this application. There are many good reasons for that. We explore them in this Information Sheet in the light of current legislative developments in Europe.

PERCHLOROETHYLENE

PER is the solvent of choice due to its efficiency, applicability to almost all garments, recyclability, energy efficient usage and (very importantly) its non-flammability.

THE “P” IN PER STANDS FOR *PEOPLE*

PER is one of the most studied solvents. It has been risk assessed under the existing chemicals regime in 2007 and since 2010 under REACH¹.

Numerous epidemiological studies of a very large number of people over many years have shown that PER is safe in dry-cleaning when properly used.

PER also demonstrated no clear association between its exposure and subsequent cancer morbidity in around 10,000 workers in dry-cleaning and laundry over more than 20 years in a recent study in Sweden.

PER is recognised as a hazardous substance, but workers’ exposure to PER today is well controlled due to closed machine technology.

ECSA, the European Chlorinated Solvent Association, has developed recommendations for the safe handling of PER².

THE “P” IN PER STANDS FOR *PERFORMANCE*

PER labelling: 95 % of all garments are labelled for the use of PER cleaning technology.

It is seen as the **best choice for cleaning fine, delicate or sensitive garments**.

Perchloroethylene remains to be the benchmark for **high quality dry-cleaning**. It rapidly penetrates fibres to dissolve soils, stains, fat and oils without shrinkage or damage of garments.

PER has also **triggered technology progress:** closed machines have been implemented with on-site recycling technology, being a standard today, resulting in significant reduction of transport costs and related CO₂ emissions.

PER, combined with modern cleaning machines, also leads to **very high cleaning efficiency:** less than 10 g of PER per kg garment is used in latest machine technology.

¹ <https://echa.europa.eu/regulations/reach/legislation>

² (<https://www.chlorinated-solvents.eu/safety-technology/storage-handling/>).

THE “P” IN PER STANDS FOR *PLANET*

PER use in modern machines is designed to fulfil all the emission requirements of the EU Industrial Emissions Directive (IED)³ and REACH.

PER's overall eco-efficiency is currently unmatched because of its unique recycling properties when used in modern equipment.

PER is recycled many times internally in the dry-cleaning machine and, once its cleaning efficiency has been exhausted, it is usually brought to external recyclers that distil off the virgin PER to be reused. Hence, PER is a good example for the reuse of products as requested in a circular economy.

PER AND ITS LEGAL SITUATION IN EUROPE

PER use in dry-cleaning is regulated by REACH and the European IED, as well as several national regulations.

The use of PER in dry-cleaning was registered under REACH in 2010. The risk assessment for the use of PER in dry-cleaning under REACH demonstrates safe use in this application with modern closed equipment.

The use of PER in modern closed equipment used in dry-cleaning fulfil the emission requirements of the EU IED.

ECSA strongly recommends the use of modern closed equipment in its recommendations for cleaning machines: <https://www.chlorinated-solvents.eu/publications/recommendations-for-cleaning-machines>.

For details on handling PER, see the ECSA Guidance on Storage and Handling: <https://www.chlorinated-solvents.eu/safety-technology/storage-handling>.

ECSA recommends using the latest machine generations (type V) and respective safe-handling practices, which suffices to meet the

even more stringent German, Dutch and French national maximum air concentration limits for the general population of 100-250 µg. The EU recommendation for an Occupational Exposure Limit (OEL) by the Scientific Committee on Occupational Exposure Limits (SCOEL) is 20 ppm for workers. Within the REACH registration dossier, all risk assessments are based on this peer-reviewed OEL and, on this basis, an OEL for the general public was derived as being a quarter of the worker OEL.

In conclusion, new machines allow the adequate control of emissions and exposure; together with properly-trained staff, PER can be used in the same safe way as other solvents.

The REACH dossier for PER has been evaluated by EU national authorities (Latvia) in 2013 and concluded that further regulatory action is not necessary based on this current REACH dossier. Hence the REACH dossier properly reflects the hazards of PER, as well as describing the related risk management measures (RMM's). These RMM's can be found in the exposure scenarios attached to your supplier's safety datasheet.

NATIONAL REGULATION

FRANCE

In December 2012, France updated its regulation (arrêté 2345) concerning the use of PER in dry-cleaning machines in shops adjacent to inhabited buildings. All machines located in workplaces adjacent to inhabited buildings have to be phased out by 2022. PER can still be used in dry-cleaning facilities in industrial areas.

³ <https://ec.europa.eu/environment/industry/stationary/ied/legislation.htm>

IS “PER” BANNED ELSEWHERE IN THE EU?

Most EU countries have implemented stringent requirements for the use of PER in dry-cleaning.

No EU country has banned PER for use in dry-cleaning – a proper enforcement of existing regulations sets out to ensure the safe handling and protection of workers and the general public around dry-cleaning shops.

Denmark also implemented measures, which are often mentioned as a ban on PER, as part of strict measures for all solvents used in dry-cleaning. The majority of Danish dry-cleaners use PER, according to the Danish Dry-Cleaning Association.

In the USA, according to the US EPA, dry-cleaning machines located in residential areas (i.e. in buildings co-located with residents) will be phased out by 2020.

This ban only affects a smaller number of dry-cleaning shops and only some big cities. For instance, dry-cleaning machines in the majority of the US federal states located in commercial centres, industrial areas and serving "cold-shops", do not face prohibition.

European Chlorinated Solvents Association

<https://www.chlorinated-solvents.eu/>

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