

CHEMAWARE™ Knowledge Services

FAQ: Trichloroethylene under REACH

This CHEMAWARE™ FAQ document is developed to answer your most frequently asked questions about Trichloroethylene (TRI) under REACH.

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References to "Dow" or the "Company" mean The Dow Chemical Company and its consolidated subsidiaries unless otherwise expressly noted



1. Is TRI banned?

TRI is **not** banned.

TRI was added to ANNEX XIV of REACH on April 21, 2013. This included the confirmation of the sunset date after which TRI cannot be supplied or used **except when an authorisation has been granted**, or for uses which are exempt from authorisation (such as intermediate use or use for research and development).

The REACH text states:

“A manufacturer, importer or down-stream user shall not place a substance on the market **after the sunset date** for a use or use it himself if that substance is included in Annex XIV unless the use(s) of that substance has been authorised or the date referred to in article 58(1)(c)(i) [=sunset date] has not been reached.”

The sunset date for TRI is 21st of April 2016.

An authorisation is granted for a specific use/application under certain conditions.

2. Do I have to apply for authorisation?

An application for authorisation can be made by every downstream user (end user), by the manufacturer or importer.

However, within complex supply chains, application for authorisation by several end-users is impractical (due to insufficient experience or capacity to manage the process for Small and Medium Enterprises (SMEs).

Therefore, an application by the manufacturer seems to be the best option.

A top-down approach, with strong support from end-users (since they have a strong knowledge on the alternatives and associated impacts), could be applied to bundle similar uses in order to limit the number of applications.

3. Will Dow apply for authorisation?

Dow is preparing an application for authorisation for TRI for the industrial use in surface cleaning in closed systems where no suitable alternative is available, and additionally for other uses such as the use of TRI in asphalt testing.

An authorisation dossier has to contain the following information:

- a) Identity of the substance
- b) Contact details
- c) Use
- d) Chemical safety report
- e) Analysis of alternatives
 1. Equivalent function
 2. Reduced overall risks
 3. Technically and economically feasible
- f) Substitution plan (if suitable alternatives exist)
- g) Socio-economic analysis

4. What does the application for authorisation for surface cleaning include and what is not included?

Dow's application for authorisation is based on the exposure scenario 'Industrial use in surface cleaning (closed systems)' as given in the extended safety data sheet (eSDS) for TRI products such as NEU-TRI™ E, NEU-TRI™ L or HI-TRI™ SMG.

Users who would like to take advantage of the continuous use of TRI under this authorisation, should review whether they comply with the exposure scenario. As there are potential alternatives for the use in surface cleaning available, the authorisation will only be applicable for downstream users who cannot substitute TRI.

Dow will not apply for authorisation for Industrial Use in Surface Cleaning (enclosed and/or open systems). Even though our safety data sheet (SDS) contains an exposure scenario

for the use in enclosed systems and calculations have shown that under certain risk measures safe use can be achieved, this technology is not considered as ‘Best Available Technology (BAT)’ or state-of-the-art technology and therefore is not seen as sustainable.

5. What is the difference between CLOSED and ENCLOSED equipment?

Machines like ECSA type III or higher are considered closed systems in the scope of authorisation for surface cleaning for which Dow is preparing the application. Please see Figure 1 “Types/generations of surface cleaning machines” in the Appendix on page 6 for the differences of types and to learn which type is supported.

6. What are my responsibilities as a user to allow me to benefit from the authorisation?

If you as downstream user would like to take advantage of the authorisation and continue to use TRI after the sunset date you will need to make sure that you comply with the exposure scenario. It will be published as follow up of a granted authorisation. You will also need to make sure you can prove and document that there are no suitable alternatives to TRI available for your application. On the basis of the authorisation granted to Dow as your supplier, you as downstream user (customer) shall notify the European Chemical Agency (ECHA) within three months of the first supply of the substance {Art. 66(1)}. Such notifications will be kept in a register maintained by the ECHA and will be made available to the Competent Authorities of the Member States on request.

7. What is a suitable alternative?

The applicant’s analysis of alternatives will conclude that there is a suitable alternative available when an alternative substance and/or technology and/or their combination:

- Provide an equivalent function to that provided by the substance or makes the substance use redundant
- Will result in reduced overall risks to human health and the environment, taking into account appropriateness and effectiveness of risk management measures
- Are technically and economically feasible (for substitution in the uses applied for) and available for the applicant

8. How do I evaluate a suitable alternative?

The Analysis of Alternatives is end user specific. In a first stage, end users list substances that might be suitable alternatives as shown in Figure 2 “Analysis process of suitable alternatives” in the Appendix on page 7. In a second stage the substances are evaluated against the end user specific requirements. Substances that won’t meet the criteria are no longer considered in the evaluation process. If a substance meets all customer specific requirements at the end of this process, this substance is regarded as suitable alternative that makes the use of TRI redundant.

9. Which SAFECHEM products can possibly substitute TRI?

SAFECHEM Europe GmbH (SAFECHEM) has a range of products which could possibly substitute TRI, for example:

- DOWPER™, DOWPER™ MC and DOWPER™ N Perchloroethylene (tetrachloroethylene, PER, Perc or PCE)



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- MECTHENE™ MC Methylene Chloride and Methylene Chloride Technical E (dichloromethane or DCM)
- DOWCLENETM Modified Alcohol solvents

All solvents are specially developed to address high surface cleaning requirements.

Please contact SAFECHEM or your distributor for further information.

10. What if a suitable alternative cannot be implemented in time?

If no suitable alternative exists or can be adopted before the sunset date, customers using NEU-TRI™ E, NEU-TRI™ L or HI-TRI™ SMG will be covered by any authorisation granted to Dow/SAFECHEM provided that the process meets appropriate criteria. Appropriate criteria include: closed systems (ECSA Type 3 and above), use of closed loop transfer systems for fresh and waste solvent, together with appropriate training for staff via the CHEMAWARE™ Solvent Trainings.

11. Will potential alternatives go down the same route as TRI?

Perchloroethylene (PER)

PER and TRI are classified differently. TRI is a class one carcinogen and listed on the authorisation list (Annex XIV of REACH).

PER is classified as a class two carcinogen. There is currently no indication that this classification will be questioned.

PER does not meet the criteria to be a Substance of Very High Concern (SVHC) based on its current classification, hence should not be included into the candidate list.

SVHC, candidate list and authorisation, Annex XIV:

- Only substances that meet the SVHC criteria as listed in article 57 of REACH can be included into the candidate list and added to REACH ANNEX XIV.

Methylene Chloride (MDC, DCM)

Methylene Chloride is, like PER a class 2 carcinogen. Methylene Chloride does not meet the criteria for an SVHC based on its current classification, hence should not be included into the candidate list.

n-PropylBromide (n-PB)

Due to its classification as toxic for reproduction 'Repr.1B4' based on effects on fertility n-PB meets the criteria of an SVHC and has been included into the candidate list in 2013, hence it is not deemed as a suitable alternative.

Modified Alcohols

The whole DOWCLENETM Modified Alcohol solvents range does not meet the criteria for an SVHC based on its current classification, hence should not be included on the candidate list.

12. What is a sunset date and what other dates are relevant to the authorisation process?

TRI has been added to ANNEX XIV of REACH on April 21, 2013. Hence the following dates are defined:

Application Date: Date by which applications for authorisation must be submitted to allow continued uses after the sunset date. The application date for TRI is 18 months after inclusion into Annex XIV (October 21, 2014).

Sunset Date: Date from which placing on the market and the use is prohibited unless authorisation is granted. The sunset date for TRI is 18 months after the application date, 36 months after inclusion into ANNEX XIV (April 21, 2016).

13. What are the conditions to use TRI until the sunset date?

TRI can be used under the conditions listed in the safety data sheet and exposure scenario related to your use until the sunset date.

14. What should I do between now and the sunset date?

Downstream users should review their use of TRI and substitute where possible before the sunset date. If no suitable alternative exists an application for an own authorisation or the use of an authorisation granted to manufacturer should be considered.

15. When will I know if an authorisation has been granted?

Most probably it will take about two years to get to a decision on the authorisation. Article 64 of the REACH Regulation gives many details about the authorisation process.

Dow's application and submission of an authorisation dossier does not guarantee the granting of the authorisation. The granting of an authorisation can include conditions and monitoring arrangements.

16. What happens if an authorisation for a certain use is not granted?

The downstream user has to stop using TRI after the sunset date or the date of publication of this decision if this happens to be after the sunset date and the manufacturers or importers are not allowed to place the substance on the market apart for those uses where authorisations are granted.

17. How will the REACH legislation be policed?

The enforcement of REACH is a responsibility of each EU Member State as well as the members of the EEA (Norway, Iceland and Liechtenstein). They must ensure that there is an official system of controls and lay down legislation specifying penalties for non-compliance with the provisions of REACH. See also question 3 on page 2.

18. Do I have to apply for authorisation for TRI in other uses/applications?

Downstream users and suppliers can request an authorisation if they want to continue using the substance. This authorisation will require:

- A chemical safety report/ risk assessment
- An analysis of alternatives which will include whether an alternative is technically and/or economically suitable to substitute the substance (TRI)
- In certain cases a substitution plan can be added, if a clear timeline for implementation of an alternative is in place which will exceed the sunset date

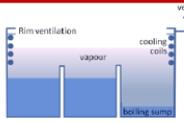
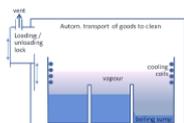
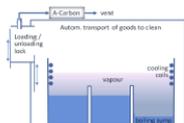
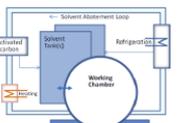
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19. Appendix

Current ECSA Nomenclature ¹⁾	Schematic Drawing	Key characteristic (Key improvement in red)	Legal compliance	Nomenclature Reference /equivalence in European Standard EN 12921-4 ³⁾	Nomenclature Reference /equivalence in J.von Grote, ETH Diss. #15067 of 2003 ⁴⁾
Type I Open Top		<ul style="list-style-type: none"> Open Top Rim ventilation Cooling with water or Refrigerated cooling (2°C). Typical air emission: between 1-16 kg/h, average 4.7 kg/h 		As "Open top tank" in Figure A.4 of Appendix A.	Water cooling: As Type I "open top water cooled" Refrigerated cooling: As Type II "open top electro- cooled"
Type IIa enclosed (vented directly to atmosphere)		<ul style="list-style-type: none"> Encased (all side closed) Vented Air lock for loading / unloading of goods Refrigerated cooling Automatic transport of goods Typical air emission: 2.0 kg/h 		As "Type II – enclosed open cleaning machine" in Figure A.3 of appendix A.	As Type III "encased machines"
Type IIb Enclosed & abatement (vented through external A-Carbon filter)		<ul style="list-style-type: none"> As type IIa but with additional external A-carbon filter for solvent abatement from exhaust air. Typical air emission: 1.0 kg/h 	<ul style="list-style-type: none"> May fulfil German Emiss. Directive "2.BImSchV" in old Version of 1986 May enable the fulfilment of limits set by EU-SED²⁾ 		
Type III Closed with internal air cleaning prior to opening		<ul style="list-style-type: none"> Closed single chamber or use of a collection chamber (air-lock to seal against solvent bathe(s)) Solvent abatement loop with refrigeration (<-20°C) to clean air prior to opening (<2g/m³) Typical air emission: 155g/h 	<ul style="list-style-type: none"> Generally fulfils requirements of German Emiss. Directive "2.BImSchV" Designed to comply with SED limits. 	Type I – sealed cleaning machines differentiated by Type Ia – Collection chamber systems Fig. A.1 of Appendix A. and Type Ib – Single chamber cleaning machine Fig. A.2 of Appendix A.	As Type IV "one chamber" machines
Type IV Closed with closed loop air drying without vent		<ul style="list-style-type: none"> No exhaust air (Fully closed air loops) Equipm. Internal A- carbon in addition to refrigeration. Better drying also of goods with difficult shapes. Typical air emission: 1-100 g/h, average about 38 g/h 	<ul style="list-style-type: none"> Generally fulfils requirements of German Emiss. Directive "2.BImSchV" Designed to comply with SED limits. 	Not yet known to EN 12921-4	As Type V "closed loop drying one chamber" machines
Type V Closed without vent and operation under vacuum		<ul style="list-style-type: none"> As type IV but with Vacuum technology, keeping the working chamber and distillation under reduced pressure during operation Improved drying Reduced emissions Reduced waste Increased solvent life time (because of lower temperature) 	<ul style="list-style-type: none"> Generally fulfils requirements of German Emiss. Directive "2.BImSchV" Designed to comply with SED limits. 	Not yet known to EN 12921-4	Was not yet known to the thesis

ENCLOSED / OPEN TOP Equipment

CLOSED Equipment

Figure 1: Types/generations of surface cleaning machines¹

¹ Source: European Chlorinated Solvent Association (ECSA) (2012): 7. Recommendations for Cleaning Machines for the use of Chlorinated Solvents in dry cleaning and surface cleaning, retrieved from [http://www.eurochlor.org/chlorinated-solvents-\(ecsas\)-publications/recommendations-for-cleaning-machines-for-the-use-of-chlorinated-solvents-in-dry-cleaning-and-surface-cleaning.aspx](http://www.eurochlor.org/chlorinated-solvents-(ecsas)-publications/recommendations-for-cleaning-machines-for-the-use-of-chlorinated-solvents-in-dry-cleaning-and-surface-cleaning.aspx), accessed on February 5, 2013.

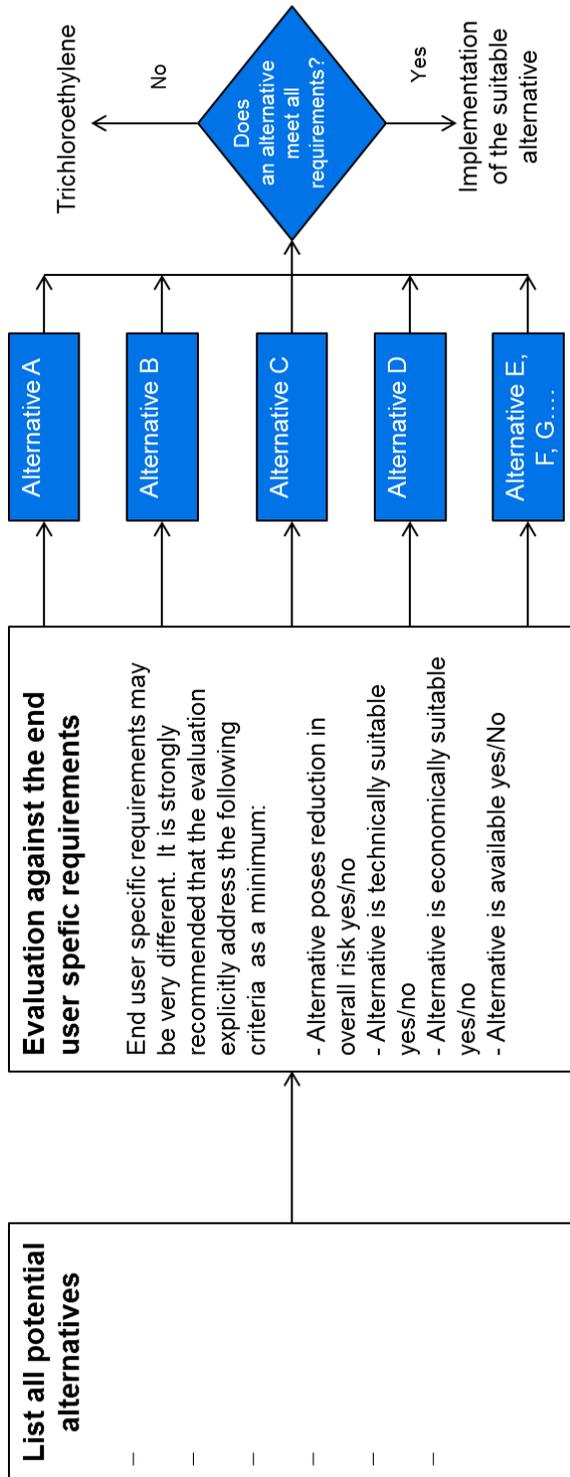


Figure 2: Analysis process of suitable alternatives