

General approach for risk management of carcinogens¹

STOP follows a hierarchy of control. For carcinogens, a step down in the hierarchy is only allowed when technical limitations prevent you from eliminating exposure entirely.

When carcinogens are present at the workplace, employers must do everything in their power to prevent workers from coming into contact with them. Promote a health and safety culture in your workplace!

The first steps when fighting exposure to carcinogens at the workplace should always include:

- Keep in mind that minimum standards for work organisation and safety requirements must be in place at all times. However, these may not be sufficient and further measures might be necessary.
- List all carcinogens used and their quantities
- Gather their safety data sheets.
- Describe the tasks where they are used, making sure to consider all potential process generated carcinogens.
- Identify workers that are potentially subject to exposure and for how long.
- Consider all the above when preparing your workplace risk assessment.

When providing instructions to your workers remember to:

- Always use simple and clear language, short and straight to the point sentences.
- Aim for a clean design in written instructions.
- Include illustrations/schemes when possible.

¹ In accordance with the definition of "carcinogen" in Article 2 a) of the CMR Directive.

Disclaimer: This document is intended to support employers in their decision-making process and does not replace or exclude the need to perform an adequate risk assessment. Please always consider your national health and safety legislation.



More information on www.stopcarcinogensatwork.eu

- Find facts on carcinogens
- Learn about occupational risks
- Find good practices and measures to reduce risks

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S.T.O.P. principle **what you need to consider regarding** Substitution



S.T.O.P. CARCINOGENS AT WORK

This document intends to provide information to support employers in their decision-making process, using the STOP principle. The STOP principle describes the order of priority of protective measures. The employer must observe this order of priority when determining and applying protective measures. **Here we will focus on the first level, S for substitution.** A document for each of the other types of measures is also available. **Please consider S first.** Also note that a combination of measures can be used.

The individual letters S-T-O-P stand for different types of protective measures:

S ... Substitution – replace dangerous substances with less dangerous substances or processes. Substitution is always the first measure to consider.

T ... Technical measures – from closed systems to effective air suction, many techniques help to reduce the exposure towards carcinogens dramatically

O ... Organisational measures – may consist of internal policies and/or organisational methods. These measures should only be used to provide additional protection. They should also be considered for emergencies and for workers who carry out regular cleaning and maintenance work.

P ... Personal Protection – sometimes substitution is not possible and technical and organisational measures are not enough. Then you need to use personal protection.

It's easy to remember: S.T.O.P. keeps you safe!



S ... Substitution

Substitution of carcinogens can be challenging. A technically equivalent alternative needs to be available and feasible. The risk from the alternative must be lower than from the replaced carcinogen. If an evaluation does not allow to substitute a certain carcinogen, the reasons need to be transparently documented.

In general, successful substitution reduces risks for employees and allows employers to implement less demanding risk management measures. When eliminating exposure to a carcinogen entirely, there would be no need of an exposure registry nor to store it up to 40 years. It could reduce costs, e.g. for safety equipment, waste, medical examination. Above all, substitution benefits worker's health.

When assessing substitution

- Check the legal obligations which could restrict or limit the use of the carcinogen. One example is authorisation under REACH.
- Identify the carcinogens with the highest risk at the workplace and consider them first.
- Find out if the carcinogen used has a function in the final mixture or article. If so, these carcinogens are usually harder to replace and might require a re-design of your mixture or article or more extensive changes to the entire production process.
- Find out what criteria your customer really needs and where these criteria are flexible to allow changes.
- Set up criteria for substitution, which are relevant for you and your business. Be aware that a safer alternative should not be disregarded simply because of costs.
- Identify who needs to be involved within your supply chain.
- Gather information about available alternatives and make informed decisions. Solutions may already be available.
- Consider sustainability aspects, e.g. carbon footprint, greenhouse gas emission, recyclability, which are becoming more and more important.
- An alternative does not need to be a universal solution. Instead, consider the combination of several types of measures.

Some measures to consider

Alternative substances or mixtures

Often substitution with an alternative substance or mixture is easier to implement in already established production processes and might only require small readjustments. However, avoid regrettable substitution by substituting with alternatives within the same chemical group and with a similar toxicological profile. Information on chemical properties, namely vapour pressure, and classification are available in the safety data sheet from your supplier and in dedicated chemical databases, e.g. by ECHA.

Example: using chromium (III) instead of chromium (VI) in surface treatment of decorative chrome plating.

Technical alternatives

Technical alternatives achieve the same result with a different process. For example, using a physical process instead of a chemical process. Changes of processes often require the application of alternative substances. The properties of the final product or material can change as well.

Example: using physical vapour deposition (PVD) instead of chromium plating with chromium (VI) for certain uses.

Functional alternatives

Setting the focus on the function in the final mixture or article can help consider a broader range of alternatives but it might require re-designing. A specific function could be delivered with an alternative as long as plausible and feasible.

Example: replacing surface treatment with chromium (VI) by protection of the surface with a wax or polish, preventing quick corrosion by exposure to oxygen and water.

Information databases for substitution

You can find examples of available databases and further information on carcinogens on our website: www.stopcarcinogensatwork.eu

