



CODE OF PRACTICE

WORKING WITH ALUMINIUM SILCATE WOOLS (ASW) ALSO CALLED REFRACTORY CERAMIC FIBRES (ASW/RCF)

BACKGROUND

Refractory ceramic fibre (ASW/RCF) has been classified by the European Union as a category 2 carcinogen meaning that it „should be regarded as if it is carcinogenic to man“. The carcinogen decision was based solely on results in animal experiments. Although ASW/RCF has been used for more than 40 years no significant health effects have been found in humans.

If there is any risk, it is not from the ASW/RCF products themselves but from the inhalation of fibrous dust released. If such a release exists it should be minimised, and as a consequence to the classification some additional precautions are made mandatory. For these reasons care needs to be taken when working with ASW/RCF and here we outline a series of precautions tailored to the use of ASW/RCF products. These are based on the more general requirements for the protection of workers from carcinogens at work.

ASW/RCF products should be limited to professional use in well-organised workplaces. Statutory or other applicable exposure limit values for ASW/RCF dust need to be observed and exposure shall be reduced to as low a level as is technically possible. Please check your local and national regulations and exposure limits before working with ASW/RCF. You should have documented¹ your reasons for using this material and also comply with various other administrative measures. As these measures differ from area to area they cannot be listed here; ECFIA or your local supplier will help you comply with these requirements.

This Code of Practice gives specific advice on the appropriate handling of ASW/RCF products.

1 As assistance to fulfil this requirement Germany has issued a document called TRGS 619. For further information please contact your supplier.

WORK PLACE RISK ASSESSMENT

A first requirement when working with ASW/RCF is to carry out a risk assessment at the workplace. The sources of dust release related to your ASW/RCF-application(s) must be identified. Their potential to expose workers should be evaluated (nature, degree, duration) in order to define a proper level of control. This evaluation can be addressed by conducting air monitoring or by using existing information from the ECFIA CARE Programme or other sources.

Evaluation by air monitoring

The levels of fibrous dust released while using ASW/RCF may be monitored. In this case an approved method must be used². Measurements should be made with personal samplers worn by operators while they carry out significant tasks. The monitoring will help to identify and prioritise the needs for control. It will also help to check that conditions are not deteriorating with time. Airborne dust levels should always be kept to a minimum. Through the CARE programme, ECFIA or your supplier can help organise measurements and keep you informed of the levels measured in other user premises.

Evaluation by reference to existing information

Within the ECFIA-CARE-Programme dust levels associated to a number of tasks were evaluated (see ECFIA publication called Recognition and Control of Exposure to RCF available on the ECFIA website under www.ecfia.eu). Refer to this ECFIA document to estimate the kind of workplace conditions associated to your specific ASW/RCF application(s).

Control measures

Based on this evaluation, you will be able to define the appropriate control measures as described below.

DUST CONTROL

Organisation of work

- Where dust emission cannot be avoided minimise dust exposure. Use operating procedures which will limit workers' fibre dust exposure.
- Exposure can be avoided by different means such as use of preformed shapes, encapsulated parts or dustless processes.
- Areas where ASW/RCF products are used should be clearly identified. Access should be restricted to persons who have been informed of the health aspects of ASW/RCF and trained to use ASW/RCF products properly.
- The number of workers involved (directly or indirectly) should be limited to authorised personnel. This is most easily achieved by appropriate organisation of working practices. Procedures limiting the amount of handling should be used.
- Only the minimum amount of ASW/RCF product should be kept at the workplace; material should be stored in its original packaging; this should only be opened when needed. ASW/RCF materials not fully used should be repacked to prevent dust release and safely stored.

² For example: Determination of airborne fibre number concentrations.
A recommended method, by phasecontrast optical microscopy (membrane filter method)
World Health Organisation
Geneva 1997.

Technical measures

- Extraction and ventilation should be introduced to prevent dust dispersion.
- Exhausted air should not be reintroduced into the working area unless filtered efficiently in accordance with local or national requirements.
- The ventilation system and the dust collectors should be regularly inspected and maintained.
- Isolation of some processes may be useful in specific circumstances

WORKING HABITS

Train operators in good and clean working habits.

All operators should be informed about all health and safety aspects in connection with the use of ASW/RCF, including training in safe handling and proper use of control measures.

Training and information should be given before employment and updated as necessary.

Experience has shown that different operators carrying out the same process can create different amounts of dust. Bad habits, such as throwing scrap onto the floor instead of placing carefully in a bin, can substantially increase dust in the atmosphere. Close observation of working practices may reveal aspects that can be improved by training or by changing handling procedures.

HOUSEKEEPING

Keep the workplace clean. Avoid dry brushing.

Dirt and scrap can act as sources of airborne fibre dust therefore regular good housekeeping will significantly reduce dust levels. The housekeeping programme should be planned to include systematic cleaning and should result in a clean and orderly work environment, which will also be safe.

Cleaning should be carried out with a vacuum cleaner fitted with a high efficiency particulate (HEPA) exhaust filter to prevent dust being blown back into the atmosphere. If this is not possible clean by wet sweeping, dry brushing should never be used. Particular care should be taken to ensure that dust is not released when emptying the vacuum cleaners, waste bins, dust collectors or in the subsequent disposal of the dust.

Compressed air should not be used.

PERSONAL PROTECTIVE EQUIPMENT

Provide appropriate protective equipment and train operators to fit and use it properly.

The table summarises the recommendations and requirements for respirators and other protective equipment. Information on the selection of suitable respirators is available in National Standards, in guidance issued by health and safety authorities and from suppliers. All respiratory protective equipment (RPE) should be suitable for its intended use and approved under local or European guidelines.

Airborne fibre concentration (LV stands for Limit Value)	Gloves	Eye protection	RPE, FFP2, P2, TM1P, TH2P	RPE, FFP3, P3, TM2P, TH3P	Protective overalls
Below LV	Recommended		Recommended		
Between the LV and 10 times the LV	Recommended	Recommended	No	FFP3 Required	Recommended
10 to 30 times the LV	Recommended	Required	No	TM2P, TH3P Required	Required
During removal of afteruse insulation	Required	Required	No	Depending on level as above	Required

Table: Suggested policy for personal protective equipment

WORK CLOTHES

Require operators to wear suitable protective clothing.

Operators should be provided with clothing specifically for use in their working area. This can be in the form of disposable, lightweight overalls worn over normal clothing. Working clothing should be long-sleeved; tight cuffs or collars should be avoided as they can cause irritation by rubbing fibres into the skin. Where appropriate further precautions need to be taken gloves, head and eye protection shall be provided.

Work clothing should be removed when the operator leaves the workplace and stored separately from normal clothing; compressed air should not be used in an attempt to remove adhering fibres. Work clothes should not be taken home. Each worker should be provided with two lockers in an appropriate changing and washing area. Changing arrangements should be designed to minimise dust exposure during dressing and undressing.

Clothing worn in ASW/RCF workplaces should be laundered by the employer separately from personal clothes. Where heavy contamination by fibre dust has occurred care should be taken to ensure that the equipment used for laundering is itself thoroughly cleaned after use. Gloves, hats, goggles and reusable masks should be cleaned after each use, stored in a dust free area and replaced by the employer when necessary.

SKIN IRRITATION

Handling ASW/RCF can cause temporary, mild mechanical irritation. Instruct operators to wash after handling ASW/RCF.

In some sensitive individuals ASW/RCF can cause skin irritation. Although this will be minimised by observing the precautions described above operators should also be encouraged to wash exposed skin areas regularly. Therefore appropriate washing facilities should be provided. The skin should first be rinsed with water and then washed with soap (not detergent). Persons sensitive to skin irritation usually acquire a degree of tolerance after a few days of exposure. However if, despite the above precautions, irritation persists then consideration should be given to transferring the individual to other work.

SMOKING

Smoking at the workplace is forbidden.

Smokers who are also exposed to ASW/RCF dust are more likely to have a dry cough and suffer from slight breathlessness. No such symptoms have been shown in non-smokers. For this, and for other more commonplace reasons, workers are advised to reduce any health risk by stopping smoking. In any case smoking is not permitted when working with ASW/RCF.

WASTE DISPOSAL

Handle, collect and dispose of scrap with care.

Solid waste and scrap should be transferred carefully to suitable impervious containers or bags of adequate strength. They should be sealed and clearly labelled and disposed of regularly.

ASW/RCF whether as supplied or after-use is classified as a „hazardous waste“ and should be disposed of in a landfill licensed for the disposal of hazardous/special waste. Please consult local regulations as requirements and nomenclature differ from area to area. Where the waste has been contaminated by other hazardous waste expert guidance should be sought. Unless wet, ASW/RCF waste is usually dusty and so should be properly bagged, clearly and visibly labelled, contained and sealed for disposal. At some landfill sites dusty wastes may be treated differently in order to ensure that they are dealt with promptly and to avoid them being windblown.

ASW/RCF PRODUCTS REMOVAL AND FURNACE WRECKING

Special care is needed when removing used ASW/RCF products.

ASW/RCF may degrade with prolonged heating at temperatures above 900° mC.

Because high concentrations of fibrous and other dusts may be generated when after-service products are mechanically disturbed during operations such as wrecking the following is recommended:

- Reduce dust emissions by means of adequate control measures.
- If it is not possible to provide adequate dust extraction during the removal process then operators should wear high-efficiency respirators. Depending on the level of exposure powered respirators may be required for some removal operations. Follow the recommendations regarding protective equipment given section 6.
- Enclosure in some circumstances may be desirable to avoid contamination of nearby work places.
- Please check the local and national regulations on silica containing dusts and exposure limits.

These procedures will ensure compliance with local regulatory exposure standards for free crystalline silica. And because devitrified fibres containing crystalline silica mixed with amorphous and other crystalline phases are far less biologically active than free crystalline silica dusts, these measures will provide a high degree of protection.

SPRAYING

Do not spray ASW/RCF-containing products.

Preparations containing ASW/RCF should not be sprayed. It is known that this application is difficult to control.

FURTHER INFORMATION

For further information, documents and assistance regarding health effects and the safe handling of ASW/RCF products, please refer to your supplier or contact ECFIA (www.ecfia.eu).

The information contained in this document is believed to be correct at the date shown. Acceptance of advice or guidance given here does not, in any way, remove the need to comply with local and National legislative requirements and/or any particular worksite rules and regulations.