



20-09-2013

Dear Sirs,

NRK, based in The Hague, representing Dutch Rubber and Plastics Converters, Downstream Users according to REACH. The NRK represents around 470 companies with 32.000 employees to create a turnover of 7,6 billion € per year (2011).

NRK is also a member of EuPC (European Plastic Converters) and ETRMA (European Tyre & Rubber Manufacturers' Association).

Volumes, Sectors, Uses and Market Shares

12 NRK companies representing 2350 employees converting 266.040 T of plastics per year. These companies convert 43.800 ton of foamed plastic and use 80 ton of ADCA per year.

ADCA is mainly used in the rigid PVC pipes and fittings industry, but also for plasticized PVC (flooring, wall paper and artificial leather) and rubber articles for the automotive industry.

For all rigid PVC applications and rubber applications ADCA is used as a solid master batch, and thus not as dry powder.

Only in the PVC flooring ADCA is used as a powder. It is technically feasible to replace ADCA powder with ADCA liquid master batch.

Equivalent level of concern substance (Art 57 f) not qualified for prioritisation

According to ECHA, ADCA is a substance of equivalent concern (according to Art. 57, f). A substance has Art. 57 f properties, when there is a scientific evidence of probable serious effects to human health or the environment which give rise to an equivalent level of concern like a CMR, PBT or vPvB substance. ADCA is classified as respiratory sensitizer with Resp. Sens. 1 according to Reg. (EC) No 1272/2008, Annex VI, Table 3.1.

The classification of a substance as an SVHC based on REACH Art. 57, f can be done as soon as the following prerequisites have been fulfilled:

- Severity of health effects
- Irreversibility
- No safe concentration
- Societal concern and impairment of quality of life
- Delay of health effects

ADCA does not fulfil these conditions – apart from the fact that so far, there is no “non-safe concentration”.

ADCA may cause only sensitising effects on the respiratory system when it is used in powder form.



In most production processes, however, ADCA is not used as dry powder. ADCA in solid master batch does not have a sensitising effect.

Furthermore no Dutch company (including the Dutch PVC flooring industry) has had ADCA related injuries and or health problems in the past ten years.

Score points too high

Taken into account that in most production processes ADCA is not used as dry powder, the score points for volume are too high. It should be taken into account only the number of sites, which use ADCA in powder form.

Also there is nearly no consumer exposure. ADCA nearly fully decomposes during processing. Most of the measurements of finished articles confirmed a concentration below 0,1 %. (ref. to ISEGA report)

Alternatives

Feedback from those companies which use ADCA confirms that suitable alternatives do not exist. Due to unique properties and blending methods those either do not work or result in far inferior product quality of foamed products

For the PVC piping industry each alternative has been evaluated:

- Relevant information on ADCA:
 - The decomposition temperature range of the blowing agent ADCA is between 150-190 C.

Alternatives:

- OBSH: not suitable, because:
 - very small temperature window. The decomposition temperature is too low, causing the foam making process, in a stage of the process in which the PVC has not the right temperature, which has direct consequences for the properties of the product (the degassing step);
 - limited availability on a global scale compared with ADCA;
 - 2.5 to 3 times as high purchase price;
 - the likelihood that OBSH as ADCA will come on the list of SVHC
- Sodium bicarbonate / citric acid mixture (130-230 C): not suitable, because:
 - the fact that it is an endothermic reaction. Apparently, this involves a suitable temperature window (130-230 C), but it is not suitable because heat is extracted during the process of the surrounding PVC which is certainly not beneficial and will affect the procedure. The foam is then coarsely.
- 5-Phenyltetrazole CAS 18039-42-4: not suitable, because:
 - high decomposition temperature (230 ° C) in order to be able to process PVC



- TSSC (p-toluenesulfonylsemicarbazide): not suitable, because:
 - decomposition temperature is too high (240/250 C) in order to be able to process PVC
- TSH: not suitable, because
 - too low decomposition temperature (105-110 C) in order to be able to process PVC
- Sodium bicarbonate CAS 144-55-8: not suitable, because
 - too low decomposition temperature (130-150 C) in order to be able to process PVC

For PVC flooring mechanical foams replacing chemical foams in product backing layers will have issues on cell structure type/control, reduction of insulation properties, cushioning comfort and weight reduction. This does not offer an alternative to achieving 3-dimensional design textured product achieved with chemical inhabitable foaming systems.

With kind regards,

On behalf of the NRK,

Director Public Affairs
Erik de Ruijter