

## SASFORREACH Consortium

### Information Letter 2 Synthetic Amorphous Calcium Silicate (CS) Substance Identification & Sameness

Dear SIEF member

In this letter the Consortium would like to inform you in detail about the Substance Identification & Sameness for

Synthetic Amorphous Calcium Silicate (CS), EC no. 215-710-8, CAS no. 1344-95-2

On July 8, 2024, the lead registrant Evonik submitted on behalf of the joint submission an update of the joint registration dossier. The update introduced the NEW boundary composition for Set of nanoforms 2: "Set of similar nanoforms of silicic acid, calcium salt [CAS-No. 1344-95-2]; amorphous, platelets".

#### Substance Name:

- **Silicic acid, calcium salt**

Synthetic Amorphous Calcium Silicate (CS), EC no. 215-710-8, CAS no. 1344-95-2 is a **UVCB substance**,

For this registration, the definition of Synthetic amorphous Calcium Silicate (CS) covers only products from precipitation processes, i.e. precipitation of an alkaline water glass solution with a Calcium Salt and the hydrothermal treatment of synthetic amorphous silica with calcium hydroxide yielding a completely amorphous product.

No other type of Calcium Silicate manufactured by different processes is supported by the Joint Submission of the SASFORREACH Consortium.

Concentration range:  $\geq 96 - \leq 99.9$  % (w/w)

**Table 1: Minor constituents**

Impurities	Typical concentration	Remarks
sodium chloride (NaCl)	$\geq 0 - \leq 3\%$ (w/w)	EC no. 231-598-3
sodium sulfate (Na <sub>2</sub> SO <sub>4</sub> )	$\geq 0 - \leq 2\%$ (w/w)	EC no. 231-820-9
aluminium oxide (Al <sub>2</sub> O <sub>3</sub> )	$\geq 0 - \leq 1.5\%$ (w/w)	EC no. 215-691-6
diiron trioxide (Fe <sub>2</sub> O <sub>3</sub> )	$\geq 0 - \leq 800$ ppm (w/w)	EC no. 215-168-2

#### SASFORREACH Consortium Member Companies

Albemarle Europe, Merck Performance Materials SAS, BASF SE, Cabot Corp., Evonik Resource Efficiency GmbH, Grace GmbH & Co. KG, Industrias Químicas del Ebro S.A. (IQE), PPG Industries Chemicals, PQ Corporation, Solvay S.A., Clariant Produkte (Deutschland) GmbH, Wacker Chemie AG, Zeochem AG

Synthetic Amorphous Calcium Silicate is registered as two sets of similar nanoforms with the following names:

**Set of nanoforms 1:** "Set of similar nanoforms of Silicic acid, calcium salt [CAS-No. 1344-95-2]; amorphous, spheroidal (boundary composition)"

**Characterisation of nanoforms in boundary composition of Set 1:**

Shape: spheroidal, spherical

Constituent particle size distribution and range

D10: Range of typical value:  $\geq 1 - \leq 40$  nm

D50: Range of typical value:  $\geq 7 - \leq 100$  nm

D90: Range of typical value:  $\geq 15 - \leq 140$  nm

Fraction of constituent particles in the size range 1-100 nm (%):  $\geq 65 - \leq 100$  %

Crystallinity: amorphous

Specific surface area:  $\geq 10 - \leq 400$  m<sup>2</sup>/g

Surface functionalisation / treatment: no

**Set of nanoforms 2:** "Set of similar nanoforms of Silicic acid, calcium salt [CAS-No. 1344-95-2]; amorphous, platelets

**Characterisation of nanoforms in boundary composition of Set 2:**

Shape: crumpled platelets

Constituent particle size distribution and range

D10: Range of typical value:  $\geq 10 - \leq 25$  nm

D50: Range of typical value:  $\geq 14 - \leq 43$  nm

D90: Range of typical value:  $\geq 30 - \leq 103$  nm

Fraction of constituent particles in the size range 1-100 nm (%):  $\geq 90 - \leq 100$  %

Crystallinity: amorphous

Specific surface area:  $\geq 5 - \leq 500$  m<sup>2</sup>/g

Surface functionalisation / treatment: no

**Identification:**

**Silicic acid, calcium salt (CS)** is predominantly characterised through the following methods of identification in IUCLID:

- Amorphous structure: X-ray diffraction (XRD)  
X-ray diffraction diagrams of CS using CuK $\alpha$  radiation with  $\lambda = 0.1542$  nm, show only a broad halo, revealing an X-ray amorphous structure. The detection limit for crystallinity by X-ray is in the order of 0.3% by weight (ECETOC 2006).
- Infrared spectroscopy (IR)
- nuclear magnetic resonance spectroscopy (NMR)

With kind regards

SASFORREACH Consortium representing Synthetic Amorphous Calcium Silicate (CS),

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