



Beratung - Schadensfallaufklärung - Qualitätssicherung - Forschung - Prüfung

- Prüflabor für Korrosion, Korrosionsschutz und Korrosionsanalytik
- Institut im Verbund der Technischen Akademie Wuppertal e. V.
- Institut an der TU Bergakademie Freiberg

☎ 0351 871 7100
Fax 0351 871 7150

Institut für Korrosionsschutz Dresden GmbH • Gostritzer Str. 65 • 01217 Dresden

Investigation Report

UB500/025/23_en

Orderer: EP Power Minerals GmbH
Duisburger Straße 170
46535 Dinslaken

Date of order: 21st/06th/2023

Receipt of samples: 22nd/06th/2023

Test period: 21st/06th – 24th/07th/2023

Order: Investigation of abrasive agent on toxic, carcinogenic and crystalline silica components – AFESIKOS

Laboratory order No.: LA4/259/23/235066, LA2/125/23/235066,
LA5/94/23/235066

Pages: 5

Responsible examiner:


Dipl.-Ing. Charlotte Graner

Head of department:



Dr. Jörg Gehrke

Institut für Korrosionsschutz Dresden GmbH
Gostritzer Straße 65
01217 Dresden

Dresden, 24th/07th/2023

1 Task

The Institut für Korrosionsschutz Dresden GmbH was given the task by EP Power Minerals GmbH to analyse the abrasive agent AFESIKOS on its crystalline silica, toxic and carcinogenic components. The information on the abrasive agent and the results of the tests are provided in the following text.

2 Requirements for abrasive agents and tests of the requirements

According to the requirements of Paragraph 3.2, Chapter 2.24 (Work with abrasive agents) of the DGUV Regel 100-500 (so far it was BGR 500) the content of crystalline silica (quartz, cristobalite, tridymite) in the abrasive agent may not exceed 2 weight percent. In addition, it must be assured that the sum of all the toxic and carcinogenic metals or their compounds (calculated as metal; chromate calculated as CrO_3) contained in the abrasive agent does not exceed 2 weight percent. Carcinogenic metals and their compounds (each calculated as metals; chromate calculated as CrO_3) may not exceed 0.2 weight percent. Beryllium, cadmium, cobalt (calculated as a metal), and chromate (calculated as CrO_3) may not exceed 0.1 weight percent individually.

3 Testing methods

Tests are conducted using known mineralogical and chemical analytic procedures (X-ray diffraction, ICP mass spectrometry, photometry). The XRD-analyses of the crystalline silica components were done by the Fraunhofer IKTS Dresden.

4 General Information on the abrasive

| | |
|---|--------------------|
| Trade name (trade identification reference) | AFESIKOS |
| Manufacturer | EP Power Grit GmbH |
| Type of abrasive agent | melted coal slag |
| Grain | --- |

5 Detailed information on the abrasive agent provided

5.1 Sample of abrasive taken by or in presence of

| | |
|-------------------------------------|-------------------------------------|
| Client | <input checked="" type="checkbox"/> |
| Manufacturer | <input checked="" type="checkbox"/> |
| Seller / agent | <input type="checkbox"/> |
| User | <input type="checkbox"/> |
| Technical monitoring body of the BG | <input type="checkbox"/> |
| Trade supervisory body | <input type="checkbox"/> |
| Testing agency / testing body | <input type="checkbox"/> |

Independent of the total quantity of the abrasive provided for testing, only a random sample will be used in the laboratory analysis.

5.2 Manufacturer information on the composition of the abrasive

Chemical average analysis:

| | |
|-----------|-------------|
| Al_2O_3 | 23 – 32 % |
| CaO | 2,0 – 8,5 % |
| SiO_2 | 42 - 58 % |
| Fe_2O_3 | 3 - 15 % |
| K_2O | 0,5 – 4,6 % |

5.3 Manufacturer information on the properties and intended uses

Blasting abrasive agent for surface preparation

6 Test results¹

The mineralogical and chemical analysis of the abrasive agent sample found, in weight percentage(s):

6.1 Crystalline silica components

| | |
|--------------------------------|-------|
| Quartz: | < 0,6 |
| Cristobalite: | ---- |
| Tridymite: | ---- |
| Sum of crystalline components: | < 0,6 |

6.2 Toxic components

| | |
|------------------------------|---------|
| Antimony: | < 0,036 |
| Lead: | < 0,018 |
| Cadmium: | < 0,004 |
| Tin: | < 0,036 |
| Sum of the toxic components: | < 0,094 |

6.3 Carcinogenic components

| | |
|-------------------------------------|---------|
| Arsenic: | < 0,018 |
| Beryllium: | < 0,004 |
| Chromate: | 0,020 |
| Cobalt: | < 0,018 |
| Nickel: | 0,009 |
| Sum of the carcinogenic components: | < 0,069 |

6.4 According to the present analytic results, the permissible limits for the sum of the

| | | |
|-----------------------------------|-----------------------------------|--|
| Crystalline silica components | exceeded <input type="checkbox"/> | not exceeded <input checked="" type="checkbox"/> |
| Carcinogenic components | exceeded <input type="checkbox"/> | not exceeded <input checked="" type="checkbox"/> |
| Carcinogenic and toxic components | exceeded <input type="checkbox"/> | not exceeded <input checked="" type="checkbox"/> |

¹ The validity of the test certificate is extended on the basis of the confirmation of the orderer of 04th/07th/2023, that the composition of the product has not changed since the last examination (UB500/025/20).
UB500-025-23_en

7 Assessment

Based on the results of the analysis and the present manufacturer guarantee, and assessed in comparison to the requirements for non-silica-containing abrasive agents as defined

fulfilled

~~not fulfilled~~

8 Guarantees of the manufacturer (agent / seller) or the user

If the present investigation report is to be used by the manufacturer (seller / agent) as evidence that the abrasive agent, named under point 4 above fulfils the requirements, of the DGUV 100-500 ("Work with blasting plants") the manufacturer (seller / agent) must guarantee – in the case of a one-time use of the abrasive agent – that the compound does not deviate from the values given under point 6 above for crystalline silica, toxic, and carcinogenic compounds or that any deviation is so insignificant as to fulfill the requirements under point 2.

The present investigation report may not serve as evidence of a non-crystalline silica abrasive agent in the case of multiple or repeated use. In the latter scenario, the user must guarantee that the requirements described under point 2 are fulfilled.

9 Validity of the investigation report

This investigation report is valid until

August 2026

The validity of an investigation report may be extended only once and only upon request. A renewed analysis of the abrasive agent is required before a new investigation report can be issued following such an extension.