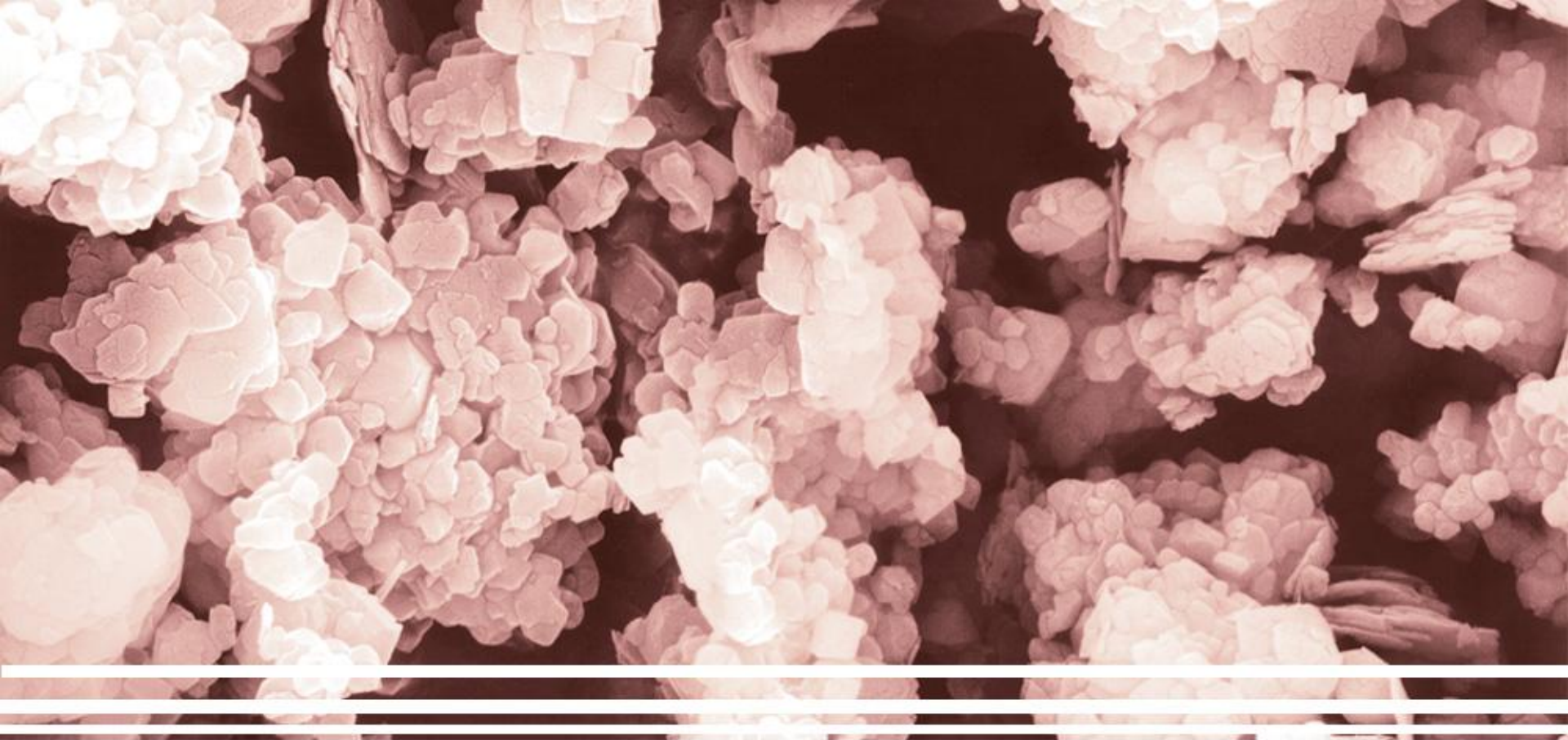


# Why No GHS-Labeling ?

**HOFFMANN**  
**MINERAL**

We supply material for good ideas



# History And Explanation Of Our Current Product Classification

**HOFFMANN**  
**MINERAL**

We supply material for good ideas



# Topics

- **Starting Situation**
- **Symbol Message**
- **Customer Response**
- **The Solution ‘Dustiness’**
- **Safety Data Sheet History**
- **Summary**



# Starting Situation

TOPICS

**STARTING SITUATION**

SYMBOL MESSAGE

CUSTOMER

RESPONSE

THE SOLUTION

„DUSTINESS“

SDS HISTORY

SUMMARY

The trigger for all those changes in classification and labelling is the CLP Regulation ( "Classification, Labelling and Packaging") from 2008:

- It complements the REACH Regulation,
- It replaces the current Dangerous Substance Directive
- and aligns the EU System to the Globally Harmonized
- System (GHS)
- for harmonized communication of hazard information
- of chemicals
- and should promote regulatory efficiency.

# Starting Situation

TOPICS

STARTING SITUATION

SYMBOL MESSAGE

CUSTOMER

RESPONSE

THE SOLUTION

‘DUSTINESS’

SDS HISTORY

SUMMARY

In simplified and pictorial terms it means:



# Starting Situation

TOPICS

**STARTING SITUATION**

SYMBOL MESSAGE

CUSTOMER

RESPONSE

THE SOLUTION

„DUSTINESS“

SDS HISTORY

SUMMARY

Already in 2002 IMA–EUROSIL recommended its member companies quartz flour products which contains more than 10 % by weight of respirable ( < 5 µm in diam.) particles to classify and label according the former Dangerous Substance Directive:

## **Danger Symbol:**



**Signal Word:** Harmful (Xn)

## **Risk Phrase:**

R 48/20, Danger of serious damage to health by prolonged exposure through inhalation

# Starting Situation

TOPICS

**STARTING SITUATION**

SYMBOL MESSAGE

CUSTOMER

RESPONSE

THE SOLUTION

„DUSTINESS“

SDS HISTORY

SUMMARY

With the reasoning our material is no ‘quartz flour’ and already the knowledge by ‘In Vitro’ Cell Experiments’ that NSE has a considerably lower toxicity level than other quartz-containing products we did not follow the IMA-EUROSIL recommendation.

In the years have been coming up our decision has been reinforced by new mineralogical findings which show that the silica portion of NSE is in fact no quartz but a very unique mixture of amorphous and crypto-crystalline silica.

# Starting Situation

TOPICS

**STARTING SITUATION**

SYMBOL MESSAGE

CUSTOMER

RESPONSE

THE SOLUTION

„DUSTINESS“

SDS HISTORY

SUMMARY

With transition to the new and more stringent CLP-Regulation we found us in the obligation to ‘describe’ the still existing hazard of silicosis adequately.

After having carefully weighed the legal consequences ( -> IARC’s cancer-classification for RCS, minimization of potential claims for compensation) IMA–EUROSIL advised its members to label quartz containing products with the STOT- symbol ( -> related only to the respirable fraction!) :



# Starting Situation

## Danger Symbol:



**Signal Word:** Danger

## Hazard Statements:

H 372, Causes damage to organs through prolonged or repeated inhalation.

## Precautionary Statements:

P 260, Do not breathe dust.

P 284, In case of inadequate ventilation wear respiratory protection.

# Starting Situation

## Danger Symbol:



**Signal Word:** Danger

## Hazard Statements:

**H 372, Causes damage to organs through prolonged or repeated inhalation.**

## Precautionary Statements:

P 260, Do not breathe dust.

P 284, In case of inadequate ventilation wear respiratory protection.

# Symbol Message

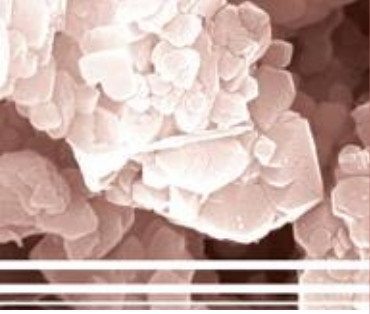
This labeling **do not express an acute** danger!

But it gives a hint that prolonged inhalation of airborne NSE – i.e. 8<sup>h</sup> daily on 220 workdays/year over 10 to 20 years without any respiratory protection – may lead to silicosis.

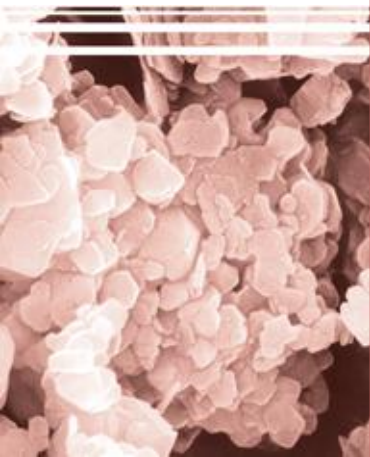
**... and very important:**

Only if our material is present pure or unbounded in a powdery preparation only then the labeling is relevant and has to be applied!

# Symbol Message



- TOPICS
- STARTING SITUATION
- SYMBOL MESSAGE**
- CUSTOMER  
RESPONSE
- THE SOLUTION
- „DUSTINESS“
- SDS HISTORY
- SUMMARY



What is the situation in a **non-powdery** matrix like preparations of varnishes, paints, adhesives, polishes and much more?

Will our material be incorporated in a water or solvent based binder-containing preparation the potential to generate respirable fine-dust is stopped:

The route of exposition described by H 372 ceases to be valid and therefore **the corresponding STOT symbol equally is not necessary anymore.**





# Symbol Message

This afore-mentioned evaluation is based upon regulation (EG) Nr.1272/2008 (CLP-Regulation), ANNEX I “CLASSIFICATION AND LABELLING REQUIREMENTS FOR HAZARDOUS SUBSTANCES AND MIXTURES, **1.1.1.5**”:

*“For the purpose of classification for health hazards, **route of exposure**, mechanistic information and metabolism studies are pertinent to determining the relevance of an effect in humans. When such information, as far as there is reassurance about the robustness and quality of the data, **raises doubt about relevance** in humans, a lower classification may be warranted. When there is scientific evidence that **the mechanism or mode of action is not relevant** to humans, **the substance or mixture should not be classified.**”*

# Customer Response

To convince our customers of the new GHS classification and labeling situation has been not as easy as thought.

There have been misunderstandings like:

- It's an acute dangerous product
- It's a carcinogenic substance
- ... and very surprising: the rule 1.1.1.5 could not be managed!

**-> led eventual to the STOT labeling of a liquid varnish mixture!**

# Customer Response

This situation was for our customers for sure not acceptable.

**“Get rid of the STOT classification and labeling otherwise we are not in the position to use your material anymore!”**

TOPICS  
STARTING SITUATION  
SYMBOL MESSAGE  
**CUSTOMER  
RESPONSE**  
THE SOLUTION  
,DUSTINESS‘  
SDS HISTORY  
SUMMARY

# The Solution ‚Dustiness‘

Basically all decisions concerning classification in GHS depends on the question *‚How much by weight of the hazardous substance(s) is contained in the mixture?‘*

**In our specific case the part of respirable (A-dust) crypto-crystalline silica is *the* hazardous substance.**

TOPICS  
STARTING SITUATION  
SYMBOL MESSAGE  
CUSTOMER  
RESPONSE  
THE SOLUTION  
‚DUSTINESS‘  
SDS HISTORY  
SUMMARY



# The Solution ‚Dustiness‘

Traditionally the A-dust fraction will be measured by laser-granulometric grain size analysis of aqueous dispersions and leads beyond all question to a weight share of 30 to 90% and with that definitely to a STOT classification.

**... but is this the truth to assess a workplace atmosphere?**


# The Solution ‚Dustiness‘

The tendency that airborne SILLITIN particles show a high level of agglomeration ability has been known qualitatively since decades.

**With the ‘Dustiness Conception’ of the standard EN 15051-3 ‘Workplace Exposure – Measurement of the Dustiness of Bulk Materials’ this effect can now be quantified.**

# The Solution ‚Dustiness‘

March 2014

	DIN EN 15051-3	
ICS 13.040.30	Together with DIN EN 15051-1:2014-03 and DIN EN 15051-2:2014-03 supersedes DIN EN 15051:2006-07	
<b>Workplace exposure – Measurement of the dustiness of bulk materials – Part 3: Continuous drop method; English version EN 15051-3:2013, English translation of DIN EN 15051-3:2014-03</b>		
Exposition am Arbeitsplatz – Messung des Staubungsverhaltens von Schüttgütern – Teil 3: Verfahren mit kontinuierlichem Fall; Englische Fassung EN 15051-3:2013, Englische Übersetzung von DIN EN 15051-3:2014-03		
Exposition sur les lieux de travail – Mesurage du pouvoir de resuspension des matériaux pulvérulents en vrac – Partie 3: Méthode de la chute continue; Version anglaise EN 15051-3:2013, Traduction anglaise de DIN EN 15051-3:2014-03		

# The Solution ‚Dustiness‘

DIN EN 15051-3:2014-03  
EN 15051-3:2013 (E)

## Introduction

This European Standard gives details of the design and operation of the continuous drop test method that classifies the dustiness of solid bulk materials, in terms of health-related fractions.

A dustiness classification is presented to provide users (e.g. manufacturers, producers, occupational hygienists and workers) with information on the potential for dust emissions when the bulk material is handled or processed in workplaces. It provides the manufacturers of bulk materials with information that can help to improve their products. It allows the users of the bulk materials to assess the effects of pre-treatments, and also to select less dusty products, if available. It is envisaged that different branches of industry might develop their own classification schemes using experimentally determined dustiness values of the bulk materials of interest.

Although this European Standard does not discuss the analysis of dust released from bulk materials (except in terms of health-related fractions), the test method produces samples with the potential for chemical analysis of the contents.

This European Standard was developed based on the results of the European project SMT4-CT96-2074 "Development of a Method for Dustiness Testing" (see [1]). This project investigated the dustiness of 12 bulk materials, with the intention to test as wide a range of bulk materials as possible, i.e. magnitude of dustiness, industrial sectors, chemical composition and particle size distribution. Meanwhile the method has been applied to investigate the dustiness of more than 500 different bulk materials (see [2]).



# The Solution ‚Dustiness‘

DIN EN 15051-3:2014-03  
EN 15051-3:2013 (E)

## 1 Scope

This European Standard specifies the continuous drop test apparatus and associated test method for the reproducible production of dust from a bulk material under standard conditions, and the measurement of the inhalable and respirable fractions of this dust, with reference to existing European Standards, where relevant (see Clause 6).

The continuous drop method intends to simulate dust generation processes where there are continuous falling operations (conveying, discharging, filling, refilling, weighing, sacking, metering, loading, unloading etc.) and where dust is liberated by winnowing during falling. It can be modified to measure the thoracic fraction as well, but this modification is not described in this European Standard. It differs from the rotating drum method presented in EN 15051-2 in that in this European Standard, the bulk material is dropped only once, but continuously, while in EN 15051-2, the same bulk material is repeatedly dropped.

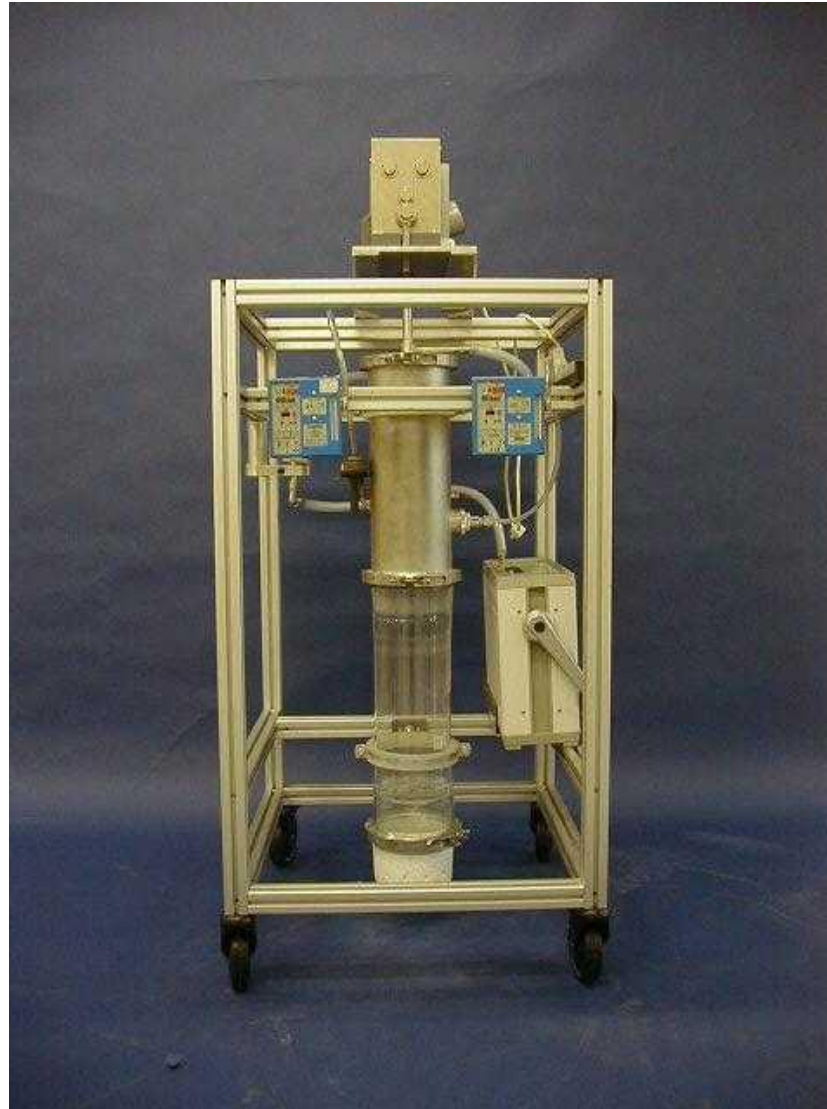
Furthermore, this European Standard specifies the environmental conditions, the sample handling and analytical procedures and the method of calculating and presenting the results. A classification scheme for dustiness is specified, to provide a standardised way to express and communicate the results to users of the bulk materials.

This European Standard is applicable to powdered, granular or pelletised bulk materials.

This European Standard is not applicable to test the dust released when solid bulk materials are mechanically treated (e.g. cut, crushed) or to evaluate handling procedures for the bulk materials.

# The Solution ‚Dustiness‘

**HOFFMANN**  
**MINERAL**



TOPICS

STARTING SITUATION

SYMBOL MESSAGE

CUSTOMER

RESPONSE

THE SOLUTION

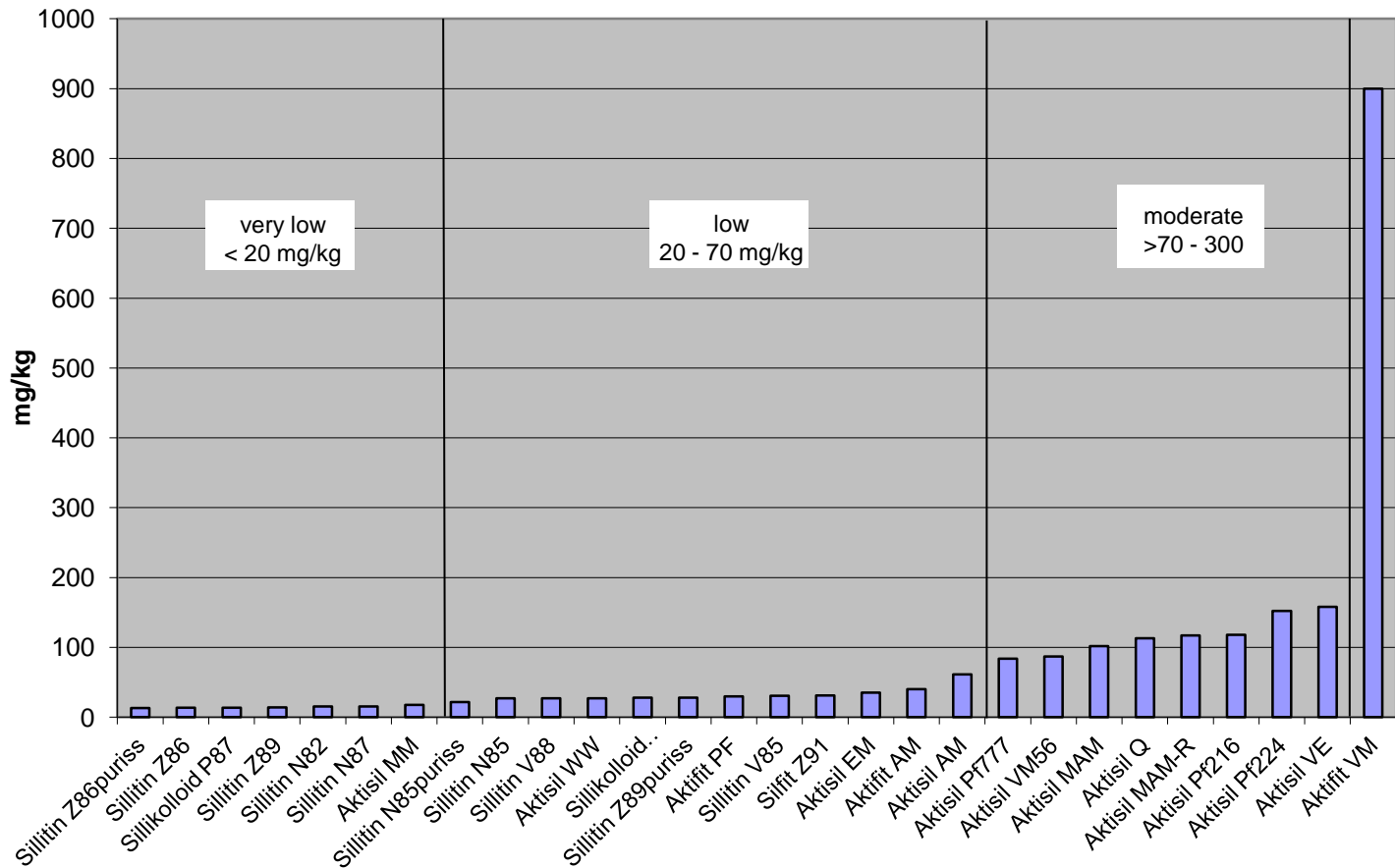
‚DUSTINESS‘

SDS HISTORY

SUMMARY

# The Solution ‚Dustiness‘

A-dust generation in accordance with DIN EN 15051-3



# The Solution ‚Dustiness‘

Based on method and measurement results we can adhere to the following facts:

- It is an EN Norm therefore it's 'State of the Art'
- It is an objective scientifically reproducible method
- Already the precursor of this norm has been mentioned in an EC Guidance Document '*as suitable to determine biologically relevant size fractions*'
- The results in an impressive manner show the big difference between 'air-borne' and 'water-dispersed' situation



# The Solution ‚Dustiness‘

... and addition the most import finding is:

- **The results confirmed the assumption of a strong agglomeration tendency and the fraction of respirable crypto-crystalline silica were found in the range of 0.001 to 0.06 % by weight for our whole product line.**
- **In conjunction with the GHS weight percentage limitation of  $\geq 0.1$  % by weight for hazardous substances no classification resp. labeling is required.**

## Appendix 2

### Information and advice

① Staubentwicklung vermeiden

② Produkt enthält Quarzfeinstaub

③ Längerfristiges Einatmen kann zu Silikose führen

④ Nur so arbeiten, daß möglichst wenig Staub entsteht.

⑤ Keep dust formation as low as possible.

⑥ Formez un minimum de poussière en travaillant.

⑦ Durante el trabajo mantener el nivel de polvo mas bajo posible.

⑧ Lavorare solo in modo che si formi la minor polvere possibile.

⑨ Verschmutzte Arbeitskleidung nicht ausklopfen.

⑩ Do not beat dust contaminated working clothes.

⑪ Ne battez pas vos vêtements de travail.

⑫ No sacudir la ropa de trabajo usada.

⑬ Non sbattere gli indumenti di lavoro sporchi.

⑭ Wenn keine Absaugung vorhanden ist, Feinstaubmasken tragen.

⑮ Wear respirator where no air exhaust available.

⑯ Le port du masque est obligatoire dans les zones dépourvues d'aspiration.

⑰ En las zonas sin extractores es obligatorio el uso de mascarillas.

⑱ Se non vi sono impianti di aspirazione, usare la maschera protettiva contro il pulviscolo.

① Avoid dust formation

② Product contains respirable crystalline quartz

③ Prolonged exposure to respirable crystalline quartz may cause silicosis

④ Trabalhar de maneira a levantar a menor quantidade possível de poeira.

⑤ 操作時、誘塵量減少を起す。

⑥ 出来る限り粉じんのたたないように取り扱うこと。

⑦ Работать так, чтобы образовывалось как можно меньше пыли.

⑧ Mümkün olduğu kadar az toz kalkacak şekilde çalış.

⑨ Não sacudir a roupa de trabalho suja.

⑩ 粉塵沾汚の作業服、請不要拍打。

⑪ 粉じんの付着した衣類をはたかないこと。

⑫ Загрязнённую рабочую одежду не вытряхивать.

⑬ Kirlı elbiselerin üzerine toz gıdermek için vurma.

⑭ Se não houver sistema de aspiração, usar máscaras portadoras contra poeira fina.

⑮ 筈に沒有排氣裝置的工作環境、誘蔽上防護口罩。

⑯ 集じん装置が無い場合、防じんマスクを使用すること。

⑰ При отсутствии отсасывающего устройства необходимо использование масок для непыльной пыли.

⑱ Emme tesisi yoksa, ince tozlara karşı, korunma maskesi tak.



## PREPARATION

B9, SILLIKOLLOID P 87, and their puriss grades

onal filler for elastomers, plastics, paints and varnishes, iver agents, welding electrodes, as well as in the

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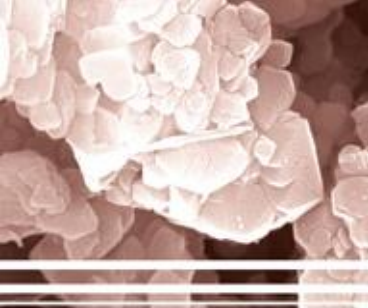
**EC CLASSIFICATION**  
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no classification

e crystalline silica may cause lung fibrosis, commonly osis are coughing and breathlessness. Exposure to dust

or rescuers.

d consult a physician.

the eyelids.



TOPICS

STARTING SITUATION

SYMBOL MESSAGE

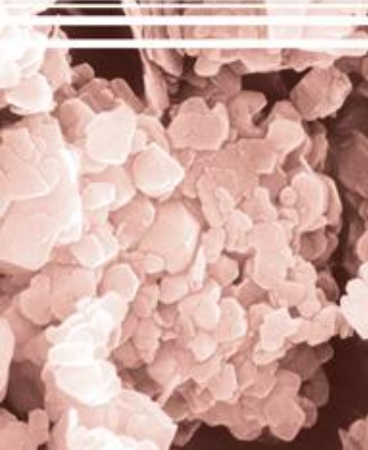
CUSTOMER RESPONSE

THE SOLUTION

'DUSTINESS'

SDS HISTORY

SUMMARY



**D** Produkt enthält  
kryptokristalline Kieselsäure

**GB** Product contains respirable  
crypto-crystalline silica

- D** Nur so arbeiten, dass möglichst wenig  
Staub entsteht.
- GB** Keep dust formation as low as possible.
- F** Formez un minimum de poussière en  
travaillant.
- E** Durante el trabajo mantener el nivel de  
polvo mas bajo posible.
- I** Lavorare solo in modo che si formi la  
minore polvere possibile.

- P** Trabalhar de maneira a levantar a  
menor quantidade possível de poeira.
- TJ** 操作時、請儘量減少揚起粉塵。
- J** 出来る限り粉じんのたないように  
取り扱うこと。
- CIS** Polarno tak, koliko objekom manje naokolo  
nastaje prašina.
- TR** Mümkün olduğu kadar az toz kalkacak  
şekilde çalış.

- D** Verschmutzte Arbeitskleidung nicht  
ausklopfen.
- GB** Do not beat dust contaminated  
working clothes.
- F** Ne battez pas vos vêtements de  
travail.
- E** No sacudir la ropa de trabajo usada.
- I** Ken stotiere gli indumenti di lavoro o  
sporchi.

- P** Não sacudir a roupa de trabalho suja.
- TJ** 粉塵沾汚の作業服、請不要拍打。
- J** 粉じんの付着した衣類をはたかない  
こと。
- CIS** Zarpačenye pokrvoja čistoje ne vertajete.
- TR** Kirli elbiselerin üzerine toz gidecek  
için vurma.

- D** Wenn keine Absaugung vorhanden ist,  
Feinstaubmasken tragen.
- GB** Wear respirator where no air exhaust  
available.
- F** Le port du masque est obligatoire dans  
les zones où pourvus d'aspiration.
- E** En las zonas sin extractores es  
obligatorio el uso de mascarillas.
- I** Se non vi sono impianti di aspirazione,  
usare la maschera protettiva contro il  
polveriscio.

- P** Se não houver sistema de aspiração, usar  
máscaras protetoras contra poeira fina.
- TJ** 若在没有排氣裝置的工作區域，請戴  
上防護口罩。
- J** 集じん装置が無い場合、防じんマス  
クを使用すること。
- CIS** Pri nepostojenosti odsisavačnega sistema neob-  
hodno uporabiti zaščitne maske.
- TR** Emme tesisi yoksa, ince tozlara karşı,  
korunma maskesi tak.

**D** Bitte beachten Sie die Hinweise  
im Sicherheitsdatenblatt unter  
[www.hoffmann-mineral.com](http://www.hoffmann-mineral.com)

**GB** Please note the advices  
in the MSDS at  
[www.hoffmann-mineral.com](http://www.hoffmann-mineral.com)



**HOFFMANN  
MINERAL**

**HOFFMANN MINERAL GmbH & Co.KG**  
D-86633 Neuburg a. d. Donau

Made in Germany



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OLLOID P 87, and their puriss versions

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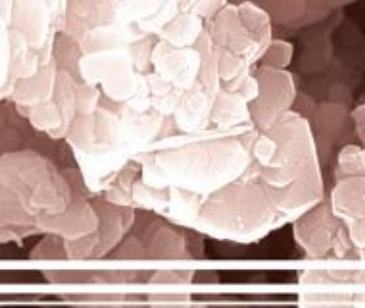
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info@hoffmann-mineral.com

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TOPICS

STARTING SITUATION

SYMBOL MESSAGE

CUSTOMER

RESPONSE

THE SOLUTION

‘DUSTINESS’

SDS HISTORY

SUMMARY

**DE** **GEFAHR**  
**Kieselerde**  
CAS-Nr. 1020665-14-8  
Schädigt die Lunge bei  
längerer oder wiederholter  
Inhalation.  
Staub nicht einatmen,  
bei unzureichender  
Belüftung Atemschutz  
tragen.

**DK** **FARE**  
**Kieslerod**  
CAS-Nr. 1020665-14-8  
Skadligt for lungerne  
ved længerevarende eller gentagne  
inhalation.  
Støvet må ikke indåtnes.  
Ved utilstrækkelig ventilation  
anvendes åndedækningsudrustning.

**FI** **VAARA**  
**Kivieri**  
CAS-nro 1020665-14-8  
Vahingoitteen lausuneita pidättävästi  
tai lausuneita hengittämällä.  
Älä hengitä pölyä.  
Käytä hengityssuojainta, jos  
tarvitaan on tilanteissa.

**HU** **VESZÉLY**  
**Kovárszék**  
CAS-szám: 1020665-14-8  
Hosszabb vagy ismétlődő belégzés  
veszélyt okozhat a tüdőre.  
A por belégzése tilos.  
Nem megfelelő szellőzés esetén  
legyezőkészletet kell használni.

**KR** **위험**  
**실리카**  
CAS번호 1020665-14-8  
장기간 또는 반복적으로 흡입하면 폐에 손상을 줍니다.  
호흡기 보호장비를 착용하십시오.  
흡입이 필요한 경우에는 마스크를 착용하십시오.

**NL** **GEVAAR**  
**Kieselsuur**  
CAS-nr. 1020665-14-8  
Veroorzaakt longbeschadiging bij  
langdurig of herhaaldelijke inhalatie.  
Stof niet inademen.  
Bij onvoldoende ventilatie een  
geschikte adem bescherming dragen.

**RO** **PERICOL**  
**Pulver de silica**  
nr. CAS 1020665-14-8  
Provoca dăuna la plămâni în caz  
de inhalare prelungită sau repetată.  
Nu respira praful.  
În cazul în care ventilația este  
insuficientă, purtați echipament de  
protecție respiratorie.

**SK** **NEBEZPEČÍ**  
**Křemíková zemina**  
CAS-Nr. 1020665-14-8  
Pri dlhšej alebo opakovanej inhalácii  
postihuje pľúca.  
Nevdychujte prach.  
V prípade nedostatočného vetrania,  
používajte ochrannú dýchaciu masku.

**BG** **ОПАСНО**  
**Кварцов прах**  
CAS-Nr. 1020665-14-8  
Продуктът е опасен за белите  
дробове при продължително  
продължително или повторно  
вдишване.  
Не вдъхват праха.  
Естествено вентилацията не е достатъчна  
исползвайте подходящи  
средства.

**EE** **OHT**  
**Käivemüli**  
CAS-Nr. 1020665-14-8  
Käivemüli kahjustab kopsu  
pikaajalise või  
korduvate inhalatsioonidega.  
Tänu mitte sisse hingata.  
Dusukeelse ventilatsioon korral kasutada  
hingamiskaitse kaitsevahendeid.

**FR** **DANGER**  
**Silice**  
CAS-Nr. 1020665-14-8  
Risque accru d'effets graves pour les  
poumons à la suite d'inhalations répétées  
ou d'une inhalation prolongée.  
Ne pas respirer les poussières.  
L'équipement de protection  
respiratoire, porter un équipement de  
protection respiratoire.

**IR** **خطر**  
**سیلیس**  
CAS: 1020665-14-8  
از خوردن، استنشاق یا تماس طولانی مدت  
با سیلیس، خطر ابتلا به بیماریهای  
شدید ریوی وجود دارد.  
از نفس زدن با سیلیس اجتناب کنید.  
در صورت عدم وجود تهویه کافی، از ماسک  
استفاده کنید.

**LT** **APDRAUDJIMS**  
**Tinaglienis**  
CAS-Nr. 1020665-14-8  
Illegiti įkvepiama, jos kvėpuojant ar dažnai  
ilgojant gali pakenkti plaučiams,  
sukelti pneumoniją.  
Esant nepakankamam vėdinimui,  
naudoti kvėpavimo būg apsaugos  
priemonės.

**NO** **ADVARSEL**  
**Kvassjord**  
CAS-Nr. 1020665-14-8  
Skader lungene ved gjentatt  
inndrøining over lengre tid.  
Pust ikke inn støvet.  
Bruk munnskytende ved  
utilstrekkelig lufting.

**RU** **ОПАСНО**  
**Кварцевый, мелкий**  
№ CAS 1020665-14-8  
Вреден для легких при  
долговременном или неоднократном  
вдыхании.  
Вдыхание пыли не допускается.  
При недостаточной вентиляции  
использовать средства защиты  
дыхательных органов.

**TH** **อันตราย**  
**ซิลิกา**  
CAS-Nr. 1020665-14-8  
การสูดดมฝุ่นซิลิกาเป็นเวลานานหรือ  
การสูดดมซ้ำๆกันอาจทำให้เกิด  
โรคปอดได้  
ห้ามสูดดมฝุ่นซิลิกาเข้าปอด  
ห้ามสูดดมฝุ่นซิลิกาเข้าปอด

**CN** **危险**  
**二氧化硅**  
CAS No. 1020665-14-8  
长期吸入或反复吸入对肺有损害。  
请勿吸入粉尘。  
通风不足时请佩戴呼吸防护用品。

**EG** **خطر**  
**السيليكا**  
رقم التسجيل 1020665-14-8 / (CAS)  
قد يؤدي التنفس في حالة الاستنشاق أو التماس  
طويلاً إلى الإصابة بأمراض خطيرة.  
لا تنفس الغبار.  
في حالة عدم كفاية التهوية، استخدم  
معدات الحماية التنفسية المناسبة.

**GB** **DANGER**  
**Silica**  
CAS # 1020665-14-8  
Causes damage to lung through  
prolonged or repeated inhalation.  
Do not breathe dust.  
In case of inadequate ventilation wear  
respiratory protection.

**IT** **PERICOLO**  
**Silice**  
No, CAS 1020665-14-8  
Provoca danni ai polmoni in caso di  
inhalazione prolungata o ripetuta.  
Non respirare la polvere.  
In caso di ventilazione insufficiente  
utilizzare un apparecchio respiratorio.

**LV** **PAVOJUS**  
**Silijs**  
CAS-Nr. 1020665-14-8  
Ilgotais plaušu bojājumus, ja ilgstoši  
vai atkārtoti ieelpojam.  
Nepieņemams vārdzīdījis gadījumā  
izmantojot plaušu.

**PL** **NEBEZPEČENSTVO**  
**Krzemionka**  
CAS-Nr. 1020665-14-8  
Powoduje uszkodzenie płuc poprzez  
długotrwałe lub powtarzane  
wdychanie.  
Nie wdychać pyłu.  
W przypadku niedostatecznej  
wentylacji stosować indywidualne  
środki ochrony dróg oddechowych.

**SE** **FARA**  
**Kvassjord**  
CAS-Nr. 1020665-14-8  
Skader lungorna vid upprepat eller  
långvarig inandning.  
Andas inte in dammet.  
Använd andningskydd vid otillräcklig  
ventilation.

**TR** **TEHLİKE**  
**Silika**  
CAS-Nr. 1020665-14-8  
Uzun süre veya tekrarlı olarak  
inhalasyon (göze değmesi) durumunda  
akciğerlerde hasara neden olur.  
Tozu tenfisi etmeyiniz.  
Yeterince havalandırma sağlanmadıkça  
kullanmadan önce koruyucu ekipman  
kullanınız.

**CZ** **NEBEZPEČÍ**  
**Křemíková zemina**  
CAS-Nr. 1020665-14-8  
Při dlouhém nebo opakovaném inhalaci  
postihuje plicy.  
Nevdychujte prach.  
V případě nedostatečného větrání  
používejte výbavu pro ochranu  
dýchacích cest.

**ES** **PELIGRO**  
**Tenafitos**  
CAS-Nr. 1020665-14-8  
Provoca danos en las pulmones tras  
inhalación prolongada o repetida.  
No respirar el polvo.  
En caso de ventilación insuficiente,  
usar equipo de protección  
respiratoria.

**GR** **ΚΙΝΔΥΝΟΣ**  
**Σίλικα**  
CAS-αριθ. 1020665-14-8  
Προκαλεί βλάβες στους πνεύμονες  
εάν αναπνεύσει ή  
εάν αναπνεύσει επανειλημμένα.  
Μην αναπνέετε το σκόνη.  
Σε περίπτωση ανεπαρκούς αερισμού,  
να φορέσετε εξοπλισμό  
προστασίας των αναπνευστικών.

**JP** **危険**  
**シリカ**  
CAS No. 1020665-14-8  
長期または反復吸入すると、  
肺に損傷を及ぼす。  
粉塵を吸入しないでください。  
換気が不十分の場合は、保護マ  
スクを着用してください。

**MY** **BAHAYA**  
**Silika**  
No. CAS 1020665-14-8  
Menyebabkan paru-paru jika diisap  
terus menerus berpanjangan atau  
berulang-ulang.  
Jangan menghirup debu.  
Gunakan perlindungan bernafas jika  
pengaliran udara tidak cukup.

**PT** **PERIGO**  
**Terra sílica**  
CAS-Nr. 1020665-14-8  
Provoca danos nos pulmões após  
inhalação prolongada ou repetida.  
Não inalar pó.  
Em caso de ventilação inadequada,  
usar protecção respiratória.

**SI** **NEBEZPEČENSTVO**  
**Silica**  
CAS-Nr. 1020665-14-8  
Pri dolgem ali ponovljenem sa  
inhalaciji škodi pljučem.  
Ne vdihavajte prahu.  
Ob nezadostnem prezračevanju morate  
opremiti za zaščito dihal.

**VN** **Nguy hiểm**  
**Đá trắng tinh (Silicat)**  
CAS-Nr. 1020665-14-8  
Gây hại lâu cho phổi nếu hít vào  
lâu hoặc nhiều lần.  
Bụi silic không hít vào.  
Sử dụng bộ phận bảo vệ hệ hô hấp  
không khi không thông gió đủ.







A scanning electron micrograph (SEM) showing a dense collection of mineral aggregates. The aggregates are composed of small, rounded, and somewhat irregular particles, some of which are clustered together. The overall texture is granular and complex. The background is dark, making the lighter-colored mineral structures stand out.

# Thank You for Your Patience!

1  $\mu$ m

Mag = 10.00 KX

EHT = 5.00 kV

Aperture Size = 20.00  $\mu$ m

LEO 1525

Date :30 Oct 2008

WD = 3 mm

Signal A = InLens

File Name = 01023075\_Let-546281\_10kx-5.tif

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Zentrum für Werkstoffanalytik Lauf

**ZWL**