

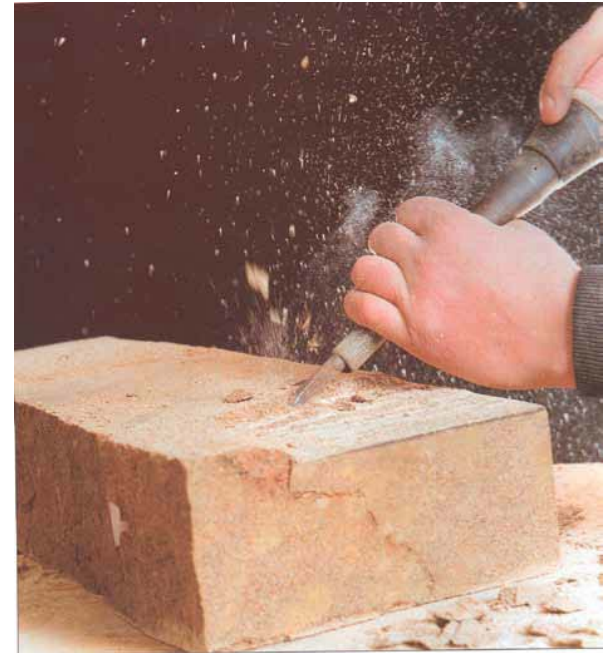
HSE approach to control of Respirable Crystalline Silica (RCS) in Stone Working

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Overview

- Introduction
 - stone working industry
 - why RCS is of concern
- HSE approach to control of RCS
 - influence improvements
 - monitor progress / compliance
- Conclusions

Introduction – stone working industry



- Stone working industry
 - traditional / heritage, memorials, surfaces/work tops
 - ~ 6500 workers in 1300 companies, most SMEs
- Dust generation depends on
 - direct activities: cut, chisel, grind, polish
 - resuspension of surface dust
 - type of stone processed



Introduction - stones & silica content



Basalt (5%)



Limestone (5%)



Concrete (25-70%)



Granite (30%)



Red Brick (30%)



Slate (40%)



Quartzite (>70%)



Sandstone (>70%)

**ARTIFICIAL
STONES
(upto ~ 95%)**

Introduction – concern over RCS

- Inhalation of RCS is harmful
 - can cause silicosis, COPD and lung cancer
 - 800 deaths from lung cancer per year in GB
 - not classified as EU carcinogen
- Workplace Exposure Limit (WEL)
 - 0.1 mg/m³ (8hr TWA)....same as arsenic
 - not ‘no effect level’ – 2.5% risk of silicosis over 15 years
- Initial measured exposures to RCS appear high



Introduction – RCS measurements



Summary of some initial measured exposures to RCS (2003-13 from HSL & industry)

Task	No. workers	Geometric Mean (mg/m ³ 8 hr TWA)	90 th %ile	% > WEL
Primary saw	15	0.05	0.14	11.1
Secondary saw	90	0.15	0.29	46.5
Hand mason	34	0.45	0.98	55.0
Surface roughening	11	0.25	0.60	66.7
Polishing	11	0.09	0.19	35.7
Maintenance	10	0.07	0.19	18.2

HSE Approach

Two-fold:

(i) influence improvements in control

- carry out research
- develop guidance
- communicate with stakeholders

(ii) monitor progress / compliance

- do research surveys
- carry out inspections

Influence – carry out research

Control efficiencies, combinations and effectiveness of use
WATER SUPPRESSION – preserve tool v control dust



Influence – carry out research

EXTRACTION – systems & worker behaviours



SEGREGATION & VENTILATION

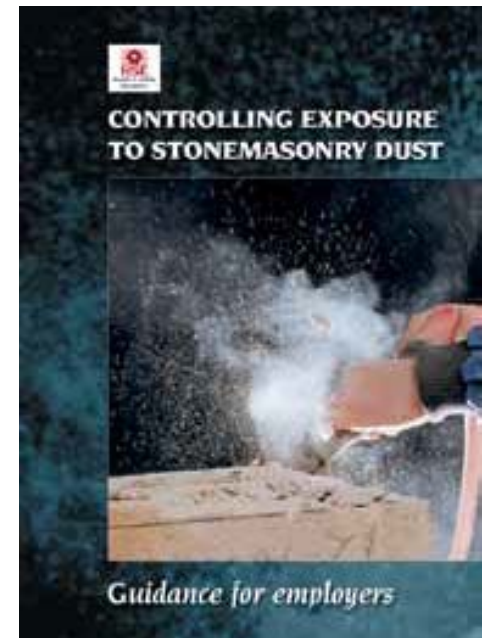
RPE

INFO, INSTRUCTION & TRAINING

Influence - develop guidance

- **COSHH Essentials sheets**
Stone & slate series into one ST series
 - Primary & secondary saws
 - Automated and hand-held rotary tools
 - Hand and pneumatic chiselling
 - Slate – saw, split and dress

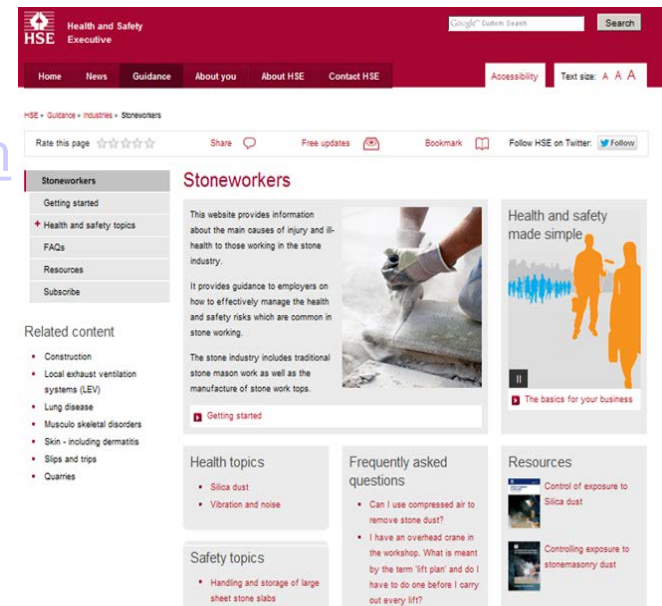
- **HSG201**
Outdated – WEL, exposure data, controls...
Update info & create as web pages



Influence - communicate

Communicate with stakeholders

- Natural Stone Show in April 2015
- Safety & Health Awareness Days (SHADs)
- stone micro-website
<http://www.hse.gov.uk/stonemasonry/index.htm>
- HSE stonework e-bulletin

A screenshot of the HSE Stoneworkers website. The page has a dark red header with the HSE logo and navigation links: Home, News, Guidance, About you, About HSE, and Contact HSE. A search bar is located in the top right corner. Below the header, there is a breadcrumb trail: HSE > Guidance > Industries > Stoneworkers. The main content area is titled 'Stoneworkers' and includes a brief introduction, a list of resources, and a 'Getting started' section. There are also sections for 'Health topics', 'Safety topics', 'Frequently asked questions', and 'Resources'. The page is well-organized and easy to navigate.

Monitor - progress /compliance

- Research on stone working sites (SRP project)
 - occ hygiene surveys and health surveillance at 10 sites (2012-13)
 - interventions: feedback in site reports, training managers & re-visits to train workforce
 - advice accepted, no health-based enforcement required
 - repeat measurements in 2016-17 will inform future work
- Proactive inspections (stone initiative in South-East)
 - inspection of 60 stone working sites in June - September 2015
 - 35/60 (58%) companies in breach of H&S law – Fee For Intervention
 - main health-based enforcement topic was RCS

Monitor - compliance

RCS Issues	%
LEV	~ 25
RPE	~ 25
Health Surveillance	~ 20
Cleaning	~ 10
PPE (excluding RPE)	~ 5
Water suppression	~ 5
Risk assessment	~ 5
Other	~ 5

Monitor - prosecution

Stonyhurst College (May 2014)

- worker had silicosis, exposures 80xWEL, fine & costs ~ £131,500



Conclusions

- RCS is still poorly controlled on many stone working sites
 - proactive visits will continue
- Need to raise awareness of 'adequate control'
 - HSE website and stone e-bulletin
- Improve our own understanding
 - control efficiencies and combinations
 - implications of new trends eg artificial stone
 - reasons for poor control practices

Thank you for listening.

Any questions ?