

Fly ash Dust Regulations abroad: documents references

USA:

1. Standards- 29 CFR part 1910: Occupational Safety and Health Standards. Department of Labor, OSHA.¹
2. NIOSH Pocket Guide to Chemical Hazards: Particulates not Otherwise Regulated (NIOSH).²
3. ACGIH (2001). TLVs Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices. American Conference of Governmental Industrial Hygienists, Cincinnati, OH.³

** Note: there is no specific occupational exposure limit for CFA in the USA, nor is coal ash regulated in OSHA under specific hazard category, therefore it is assumed to be included in the group of materials defined as nuisance dust, based on OSHA definition for nuisance dust (Particulates not Otherwise Regulated-PNOR).*

UK:

1. List of approved workplace exposure limits (as consolidated with amendments October 2007).⁴ The control of Substances Hazardous to Health Regulations 2002 (COSHH), No. 2677: Health and Safety. Health and Safety Executive.⁵

** Note: same TLV for pulverized fuel ash and other materials classified as nuisance dust (e.g. Cellulose⁶, Starch⁷, Gypsum⁸ mineral).*

2. Awatch Committee: How to progress the identified "emerging issue" of reviewing appropriate levels of control and associated terminology for "nuisance dust". Health and Safety Executive.⁹

** Note: "The current COSHH regulations and associated ACOPs do not use the term "nuisance dust". Rather, reference is made to a dust "of any kind" when present in the air at concentrations equal to or greater than 4 and 10 mg/m³ (respirable and inhalable, respectively)". This quote from HSE*

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http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9992

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9994

² <http://www.cdc.gov/niosh/npg/npgd0480.html>

³ [Definition](#) for Particulates Not Otherwise Specified by (PNOS) ACGIH.

⁴ <http://www.hse.gov.uk/coshh/table1.pdf>

<http://www.hse.gov.uk/coshh/table1sup.pdf>

⁵ <http://www.opsi.gov.uk/si/si2002/20022677.htm>

⁶ And outside UK, e.g. Classification by OSHA (USA), for [total](#) and [respirable](#) dust

⁷ As previous, for [total](#) and [respirable](#) dust.

⁸ As previous, for [total](#) and [respirable](#) dust.

⁹ <http://www.hse.gov.uk/aboutus/meetings/iacs/acts/watch/220207/p1.pdf>

paper, can lead to the assumption that coal ash is classified in the UK as nuisance dust, since it has the same limit values as above.

3. Environmental code of practice for the sale and use of pulverised fuel ash (PFA). UKQAA.¹⁰

Germany:

1. TRGS 900: Technische für Gefaurstoffe (Technical Rule for Hazardous Materials).¹¹

** Note: no mentioning of coal ash in the list of occupational exposure limit values for hazardous materials.*

The Netherlands:

1. Meij, R., 2003. Status report on the health issues associated with pulverized fuel ash and fly dust. KEMA report, 50131022-KPS/MEC 01-6032.¹²

** Note: There is a recommendation to classify coal fly ash as nuisance dust, since "pulverized fuel ash doesn't possess any toxic properties, so no increased health risk is involved as long as the requirements laid down for nuisance dust in the occupational environment are met. Exposure to quartz can lead to pneumoconiosis or silicosis, however, the absence of the effects of coal ash normally associated with quartz is attributable to the fact that the quartz in pulverized coal ash is mainly enclosed within vitreous material."*

2. Henk te Winkel, 2009. Environmental and Health aspects of ashes produced at co-combustion of biomass. WOCA 2009.¹³

** Note: Includes a recommendation to classify coal fly ash as nuisance dust. "In the workplace underneath the E-filter, the measured stationary respirable atmospheric quartz concentrations under normal stationary conditions, average 0.0005 mg/m³, less than 1 percent of the TLV for quartz (0.075 mg/m³)...all the research undertaken, in vivo and in vitro studies¹⁴,*

¹⁰ Click [here](#) to download the paper.

¹¹ http://www.baua.de/nn_16806/de/Themen-von-A-Z/Gefahrstoffe/TRGS/pdf/TRGS-900.pdf

¹² For viewing this report click [here](#).

¹³ <http://www.flyash.info/2009/034-winkel2009.pdf>

¹⁴ e. g.,

Borm, P. J. A., 1997. [Toxicity and occupational health hazards of coal fly ash \(CFA\). A review of data and comparison to coal mine dust](#). Annals of Occupational Hygiene, 41, pp. 659-676.

Borm, P. J. A., Knapen, A. M., Schins, R. P. F., Herwijnen, M. van., Schilderman, P. A. E. L., Maanen, J. van., Smith, K. and Aust, A., 1999. In vitro effects of coal fly-ashes: Hydroxyl radical generation, iron release, and DNA damage and toxicity in rat lung epithelial cells. Inhalation Toxicology, 11, pp. 1123-1141.

indicate that quartz in pulverized fuel ash doesn't have the same effect on humans or animals as pure quartz or some quartz-containing substances and doesn't constitute a fibrogenic risk...the absence of the effects normally associated with quartz is attributable to the fact that the quartz in pulverized fuel ash is mainly enclosed within vitreous material...the applied research indicates that there is no reason to regard co-combustion ash "dust" as harmful."