



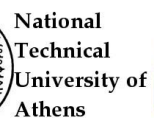
TASK O1/A3

REPORT ON THE DEGREE OF HEALTH AND ENVIRONMENTAL PREVENTION MEASURES IN PARTICIPANT COUNTRIES



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INTRODUCTION

The use of nanomaterials is representing a revolution in improving the performance of products made from natural stone. The mechanical characteristics of stone materials have increased their properties thanks to the use of coatings and surface treatments based on the application of nanoparticles and nanocomposites. But at the same rate as the quality of the material has increased with the application of these nanocomposites, the safety of workers is being greatly compromised. Nanomaterials are an invisible threat to workers' health.

Despite the advantages they offer, many workers are not aware that they are working with them and their harmful effects are not yet clear. Numerous studies establish that there are proven health risks linked to various manufactured nanomaterials, which, given their size, can interact at the cellular level.

In this report included in the task O1/A3 "*Report on the degree of health and environmental prevention measures in participant countries*" corresponding to Intellectual Output 1 "*Guide to risks and health and environmental prevention measures in the safe production and use of nanomaterials in the Stone Sector*" research has been carried out on the degree of health and environmental prevention measures currently applied in the stone industry in relation to the use of nanomaterials, in order to qualify the level of implementation in the workplaces of the participating countries.

To meet this objective, a standard form for data collection was developed. Each participating country collected the information from several national companies and, once the data was collected, it has been possible to produce this general report with the results of the survey.



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1. QUESTIONNAIRE

In order to rate the level of implementation in the workplaces of the participating countries the following data collection form has been developed:

NANO QUESTIONNAIRE FOR CONSTRUCTION COMPANIES AND RELATED INDUSTRIES

Questionnaires supplied by:	No. of answers
DNV	
BZB	
CTM	
S.E. Padova	
NTUA	
DELTA	
	0

1. Are there any prevention management models based on a standard generally implemented in your company?

	No. of answers	%
Yes		#jDIV/0!
No		#jDIV/0!

1.1. If so, what is the standard implemented?

	No. of answers	%
OHSAS 18001		#jDIV/0!
ISO 45001		#jDIV/0!

1.2. If so, is it integrated with another certified management system?

	No. of answers	%
ISO 14001		#jDIV/0!
ISO 9001		#jDIV/0!
EFQM		#jDIV/0!
EMAS		#jDIV/0!
Others		#jDIV/0!

Others: _____



2. Do you use protective equipment in your workplace?

	No. of answers	%
Yes		#iDIV/0!
No		#iDIV/0!

2.1. If so, what type of personal protection to protect against nanoparticles do you use?

	No. of answers	%
Headset		#iDIV/0!
Helmet		#iDIV/0!
Gloves		#iDIV/0!
Work clothes		#iDIV/0!
Filtering half-masks to protect against particles (FFP1 FFP2 or FFP3)		#iDIV/0!
Half masks with particles filters (P1, P2 or P3)		#iDIV/0!
Full face masks with particle filters		#iDIV/0!
Protective goggles		#iDIV/0!
Face shield		#iDIV/0!
Safety harness		#iDIV/0!
Safety footwear		#iDIV/0!

Others: _____

2.2. If so, what type of collective protection to protect against nanoparticles do you use?

	No. of answers	%
Ventilation systems		#iDIV/0!
Perimeter fencing of work areas		#iDIV/0!
Wet media in dusty environments		#iDIV/0!
Signs and indicators		#iDIV/0!

Others: _____



3. Have you seen an increase in the use/production of nanomaterials in recent years?

	No. of answers	%
Yes		#iDIV/0!
No		#iDIV/0!

3.1. If so, what are they mostly used for?

	No. of answers	%
Paints		#iDIV/0!
Consolidants		#iDIV/0!
Water repellents		#iDIV/0!
Photocatalytic and self-cleaning activity		#iDIV/0!
Biocidal activity		#iDIV/0!
Fire resistance		#iDIV/0!
Aerosols		#iDIV/0!
Don't knows		#iDIV/0!

Others: _____

4. Do you use any specialised nanowaste treatment systems?

	No. of answers	%
Yes		#iDIV/0!
No		#iDIV/0!

4.1. If so, could you tell us which one it is?

Nanowaste treatment system: _____

5. Are there training and information programmes for workers in relation to prevention management?

	No. of answers	%
Yes		#iDIV/0!
No		#iDIV/0!
Don't knows		#iDIV/0!



2. RESULTS OBTAINED

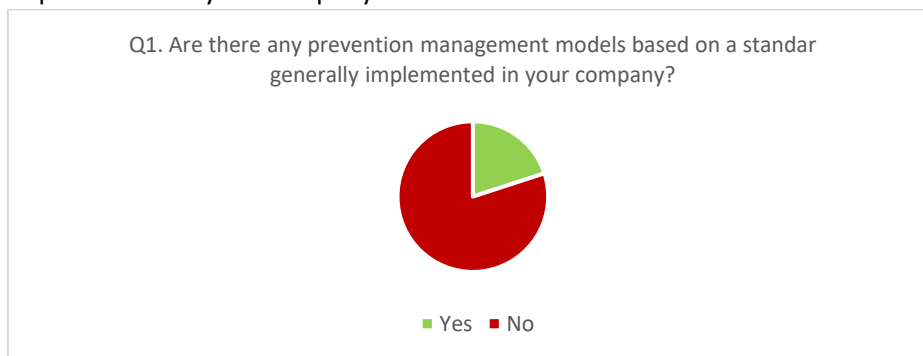
The number of questionnaires collected in each of the participating countries was as follows:

Questionnaires supplied by:	No. of answers
Germany	41
Spain	5
Italy	5
Greece	4

Therefore, the total number of questionnaires collected was 55, most of which were collected in Germany. This may be due to a greater presence of companies related to nano products in that country.

The results are analysed question by question below:

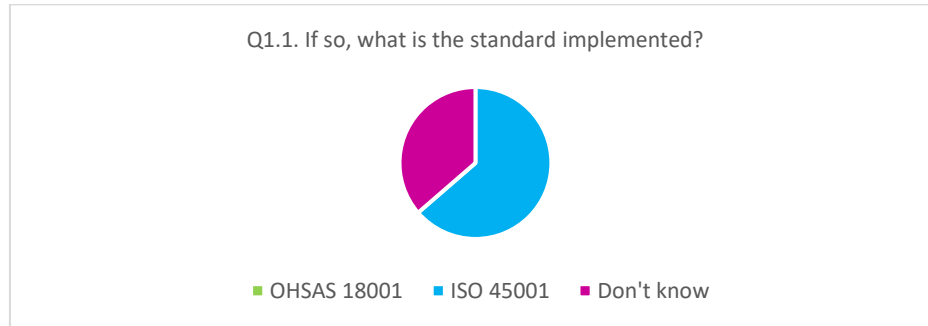
1. Are there any prevention management models based on a standard generally implemented in your company?



Of the 55 surveys recorded, only 11 stated that they had any prevention management models based on a standard generally implemented in their organisation. This does not imply a lack of prevention systems based on a standard, which does not mean less prevention on the part of the company, but it does mean a lack of supervision and/or auditing carried out by an external company.

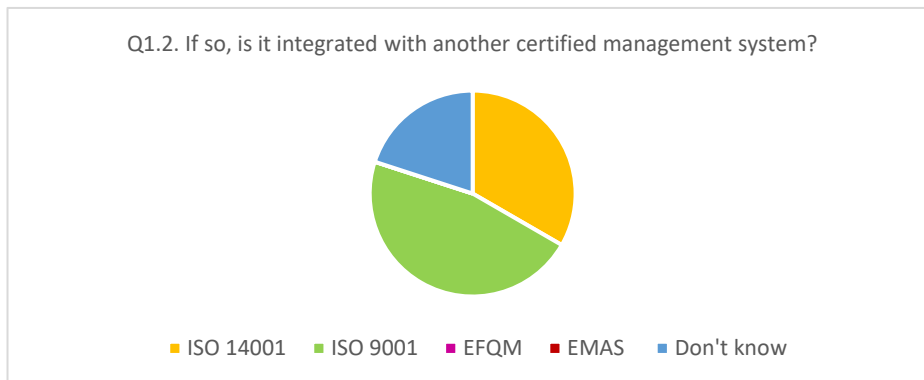


1.1. If so, what is the standard implemented?



Except for 4 of the 11 affirmative answers, the rest, 7, have implemented the ISO 45001 standard in their organisation. ISO 45001 is the current Occupational Health and Safety Management Systems (OHSMS) standard that replaces the former British standard BS OHSAS 18001.

1.2. If so, is it integrated with another certified management system?



Analysing the answers to this question, it can be seen that several of the companies that have a prevention system in place also have a quality management system (ISO 9001) and/or an environmental management system (ISO 14001). They also have a quality management system (ISO 9001) and/or an environmental management system (ISO 14001). 5 companies have implemented ISO 14001 and 7 have implemented ISO 9001, while 3 do not know if they have any other system in place.

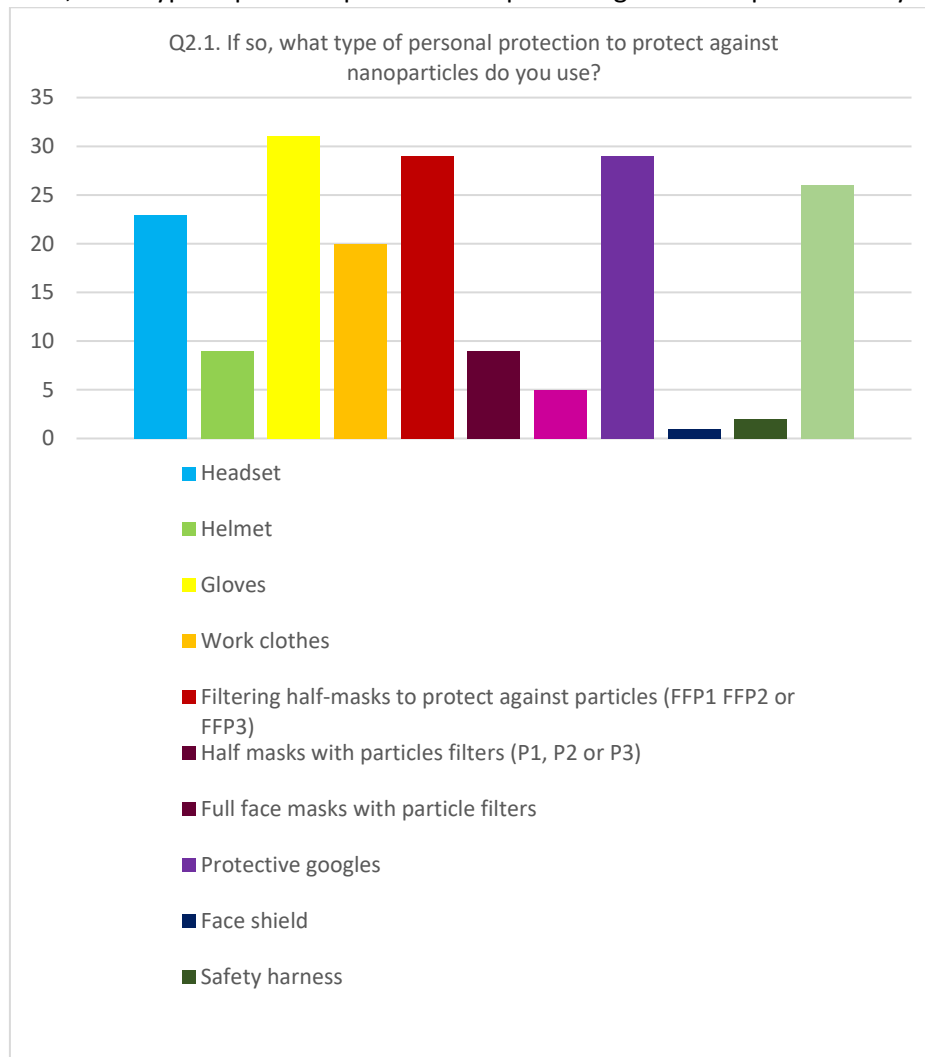


2. Do you use protective equipment in your workplace?



Of the 55 surveys collected, only one respondent gave a negative answer to this question, which means that the remaining 98.18% of respondents use protective equipment at their place of work.

2.1. If so, what type of personal protection to protect against nanoparticles do you use?





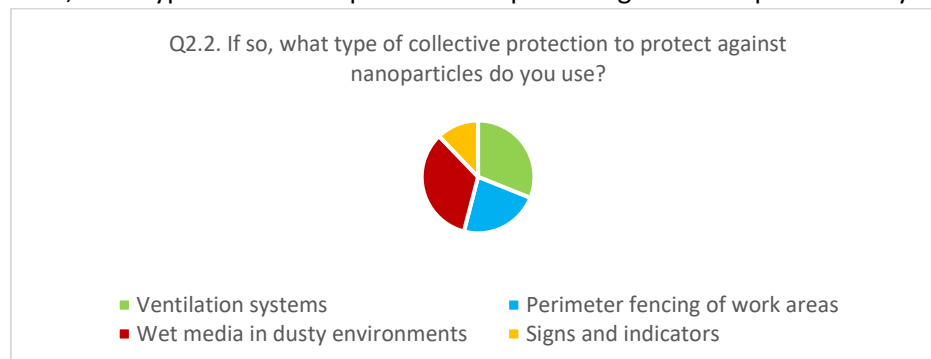
The most frequently used items of protection among the respondents in the same order are as follows:

- Gloves
- Filtering half-masks to protect against particles (FFP1 FFP2 or FFP3)
- Protective goggles
- Safety footwear
- Headset
- Work clothes

The rest of the equipment is less used by the respondents adding some of them some types of personal protection not added in the list like:

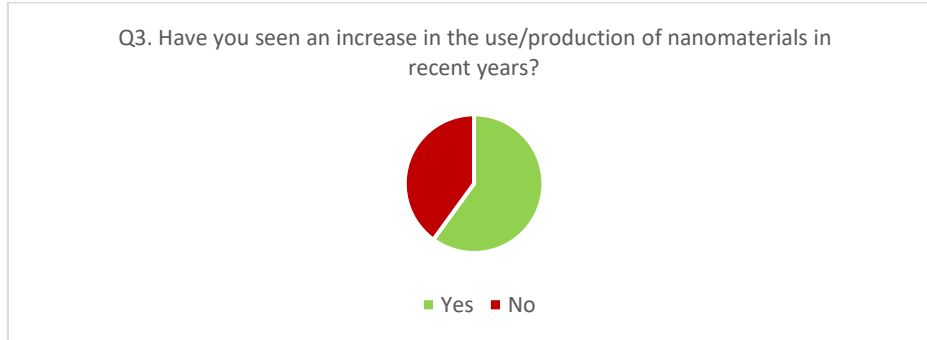
- Dust extraction on the unit with class M or H
- Cyclone pre-separator
- Fan for room ventilation

2.2. If so, what type of collective protection to protect against nanoparticles do you use?



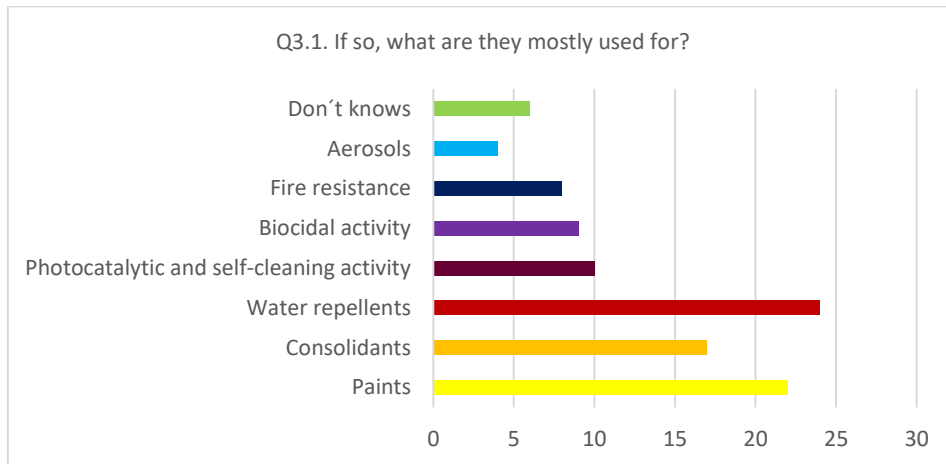
In terms of collective cooling, wet media in dusty environments is the most used by respondents (25), followed by ventilation systems (23). This was followed by perimeter fencing of work areas (17) and signs and indicators (9).

3. Have you seen an increase in the use/production of nanomaterials in recent years?



60% of respondents say they have observed an increase in the use of nanomaterials in recent years.

3.1. If so, what are they mostly used for?



As can be seen in the graph, the most used/produced nanoparticulate treatments are water repellents, paints, consolidants, and photocatalytic and self-cleaning activity.

4. Do you use any specialised nanowaste treatment systems?



As for nanowaste, only 5 out of 55 respondents reported using a specialised system for nanowaste, which is only 9.09%. Among the specialised nanowaste systems used, respondents cited separate storage in filter bags and separate feeding for disposal.

5. Are there training and information programmes for workers in relation to prevention management?



Finally, in relation to training and information programmes for workers on prevention management, only 12 of the answers were affirmative, meaning that only 21.82% of respondents have access to training and information on prevention, with 45.45% of respondents saying no and 32.73% saying they did not know.

3. CONCLUSIONS

From the results obtained from the surveys carried out, we can extract that:

- Most of the completed questionnaires come from Germany, which may imply a greater activity with nanoparticles in this country compared to the rest, or a better relationship between German partners and members of this sector.
- Only one fifth of the respondents say that they have a standardised prevention system in their company, which indicates a lack in this area. Those companies that have implemented the ISO 45001 standard, mostly also have quality and environmental management systems in place.
- The vast majority of respondents (98.18%) make use of individual protection systems and also make use of collective protection systems.
- According to the results of the survey, although not all respondents think so, the majority have observed an increase in the use/production of materials in recent years.

Despite the above, it is striking that 18 of the respondents, i.e., 32.73%, say that they do not know whether they have access to training and information on prevention management in their company. This may be due to lack of interest on the part of the respondent or lack of information



on the part of the management of each of the companies. Not forgetting that 45.45% say that they do not have access to training and information on prevention management.