ASBESTOS 2023 CONFERENCE

Collaboration is Key

21 & 22 March 2023 – Auckland, NZ

There is plenty of asbestos at the bottom. The case of the magnesite raw material contaminated with asbestos

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Asbestos - the global scenario

- IARC classified all the six asbestos species as "carcinogens for humans" but the toxicity potential of chrysotile is assumed to be lower than that of amphibole asbestos and **65% of the countries in the world still allow a "safe use" of chrysotile**.

Current Asbestos Bans
compiled by Laurie Kazan-Allen

(Revised July 14, 2022)

National Asbestos Bans:[1]

Algeria	Czech Republic*	Iran	Malta*	Serbia
Argentina	Denmark	Iraq	Mauritius	Seychelles[3]
Australia	Djibouti	Ireland	Monaco	Slovakia*
Austria	Egypt	Israel	Mozambique	Slovenia
Bahrain	Estonia	Italy	Netherlands	South Africa
Belgium	Finland	Japan	New Caledonia	Spain
Brazil	France	Jordan[2]	New Zealand[4]	Sweden
Brunei	Gabon	Korea (South)	Norway	Switzerland
Bulgaria	Germany	Kuwait	Oman	Taiwan[5]
Canada	Gibraltar	Latvia	Poland	Turkey
Chile	Greece*	Liechtenstein	Portugal*	United Kingdom
Colombia	Honduras	Lithuania*	Qatar	Uruguay
Croatia	Hungary*	Luxembourg	Romania	
Cyprus*	Iceland	Macedonia	Saudi Arabia	

- A globally harmonized system is lacking due to disagreement regarding the use of chrysotile and concentration limits of asbestos fibres.

The governing body of the **Rotterdam Convention** for Hazardous Chemicals has not yet managed to reach consensus for listing Chrysotile in **Annex III** and compel producers to label chrysotile.

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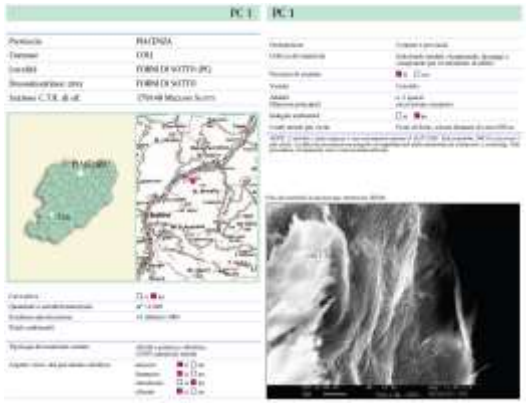
The legislative framework in Italy and exceptions

Legge 27 marzo 1992, n. 257 - (April 13, 1992)

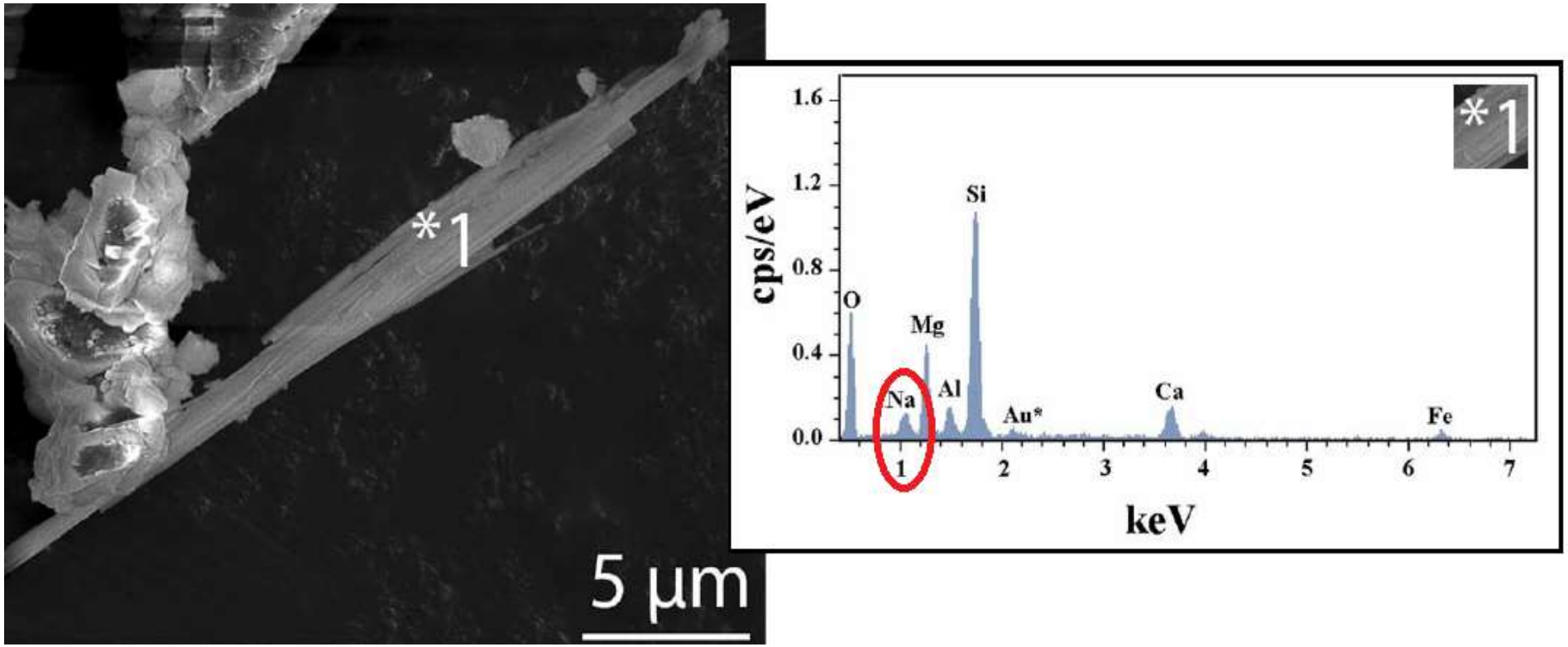
Art. 1 – Aims 2. The mining, import, export, marketing and production of asbestos, asbestos products or products containing asbestos are prohibited (*translated from Italian*).



Emilia Romagna REGION Council Resolution No. 1696/2012

Regional Guidelines containing detailed methods of cultivation of ophiolite materials and technical measures for the containment of related risk, as well as precise instructions for the use of extracted materials according to their asbestos content.

Asbestos in Italy: the Orani case



ideal tremolite $Ca_2Mg_5Si_8O_{22}(OH)_2$

ideal richterite $Na(CaNa)Mg_5Si_8O_{22}(OH)_2$

ideal winchite $Na(CaNa)Mg_4(Al,Fe^{3+})Si_8O_{22}(OH)_2$

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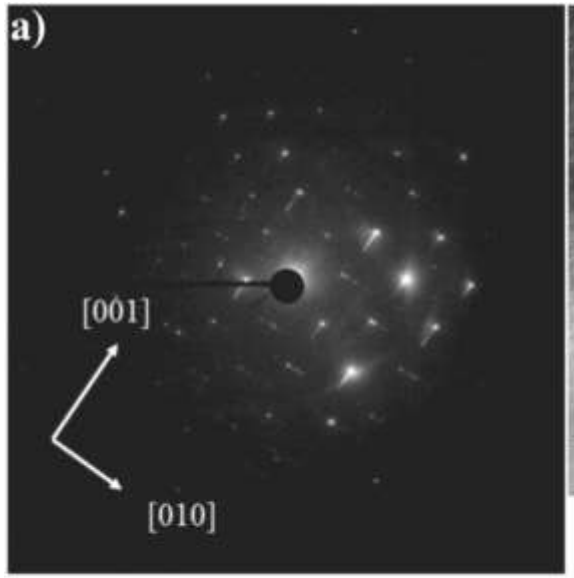
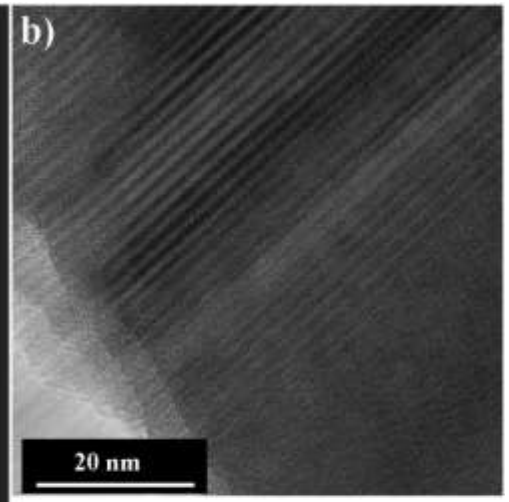
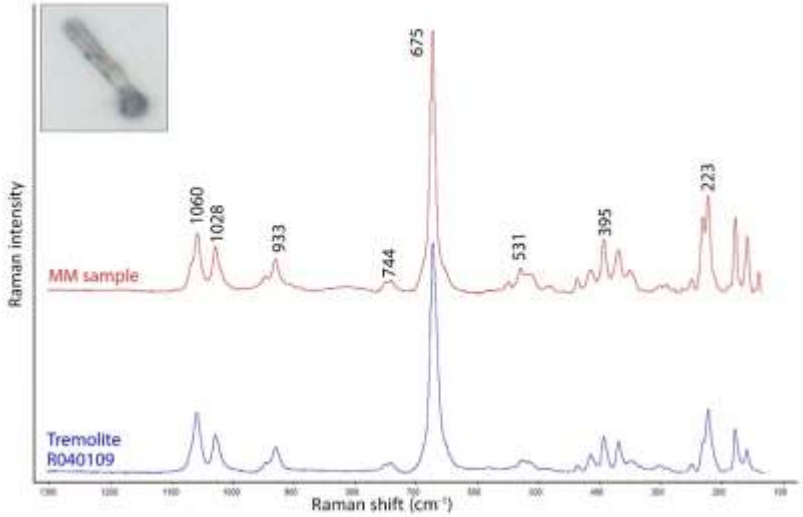
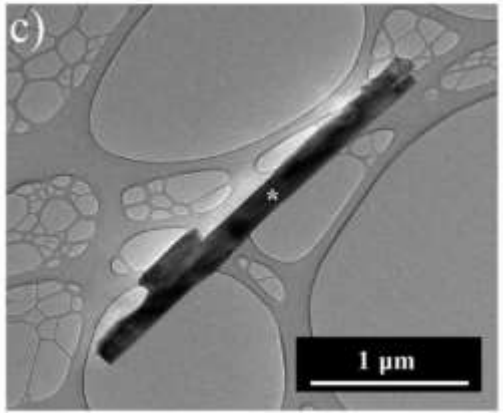
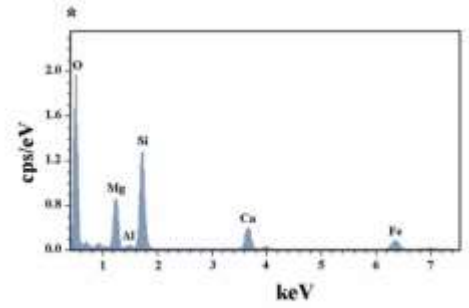
Asbestos in Italy: the Orani case











Oxides	This work	Pacella et al.
SiO_2	57.0 (2)	57.50 (4)
TiO_2	0.02 (3)	0.02 (2)
Al_2O_3	1.30 (2)	0.05 (1)
Cr_2O_3	0.01 (2)	0.01(1)
MnO	0.08 (3)	0.26 (5)
MgO	20.3 (6)	22.64 (2)
CaO	13.11 (8)	13.14 (1)
Na_2O	0.13 (3)	0.06 (2)
K_2O	0.04 (1)	0.03 (1)
NiO	0.01 (2)	–
F	–	0.04 (5)
Fe_{tot}	5.3 (9)	2.42 (3)
FeO	–	2.20
Fe_2O_3	–	0.24
H_2O	2.02[a]	2.13
Total	99.28	98.28

EMPA crystal-chemical formula:

$$K_{0.01}(Na_{0.04}Ca_{1.95})_{\Sigma=1.99}(Mg_{4.20}Fe_{0.58}Al_{0.15}Mn_{0.01})_{\Sigma=4.94}(Si_{7.92}Al_{0.06})_{\Sigma=7.98}O_{22.13}(OH)_{1.87}$$

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Why Italy imports out-of-law ACMs?

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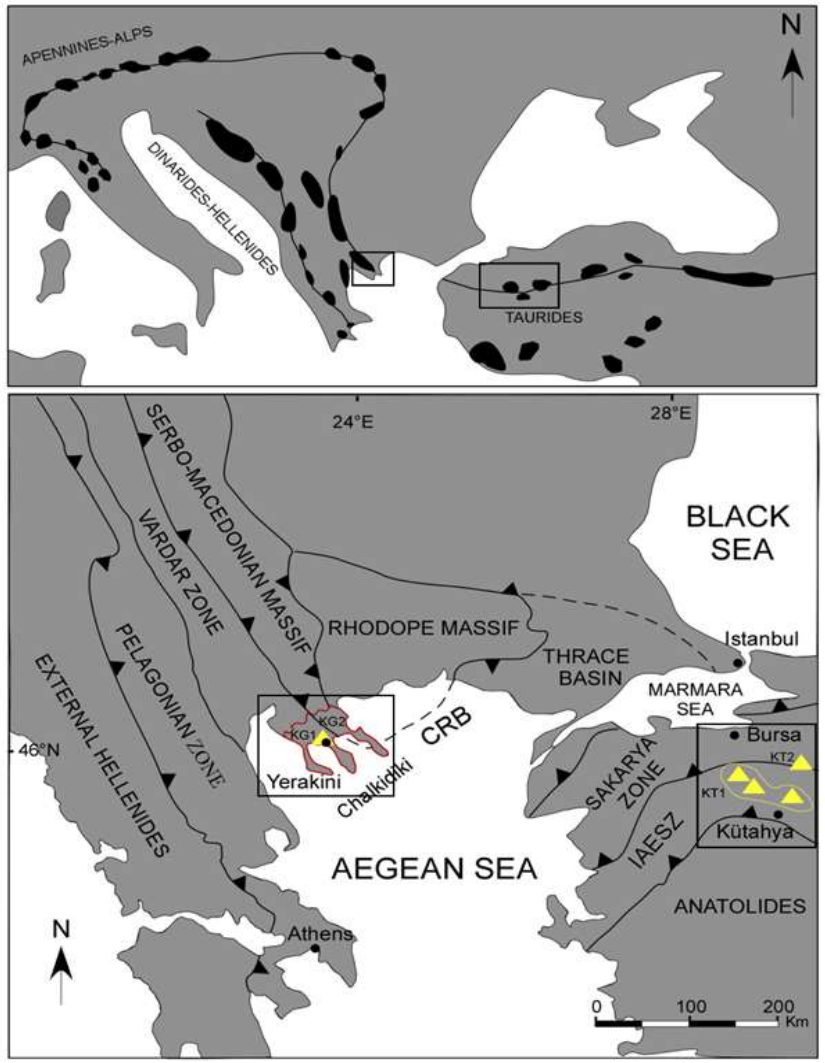
The magnesite case

A widespread raw material used in several industrial applications (insulation and coatings, inorganic additive in ceramic inks, pigments and cements, as MgO source, production of traditional ceramics and many more.



Occurrence:

(i) sedimentary (**Veitsch type**)

(ii)in ultramafic magmatic rocks (**Kraubath type**)

(iii)sedimentary associated to ultramafics (**Bela Stena type**)

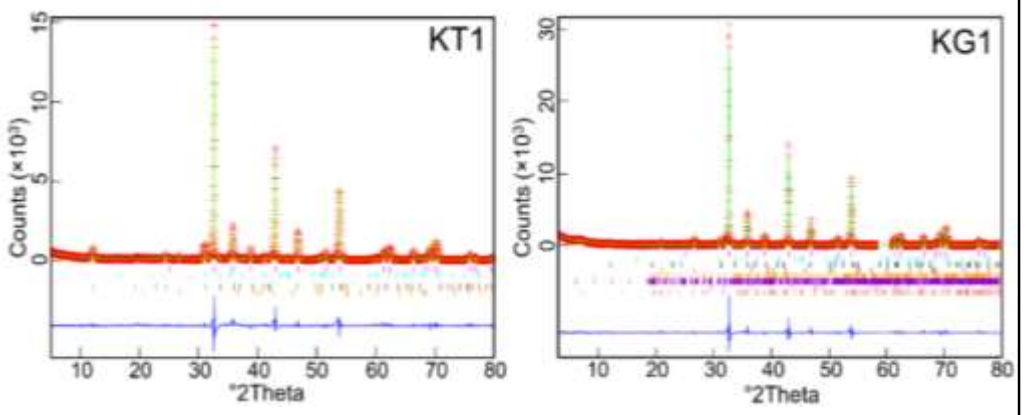
(iv)in metamorphosed ultramafics (**Greiner type**)

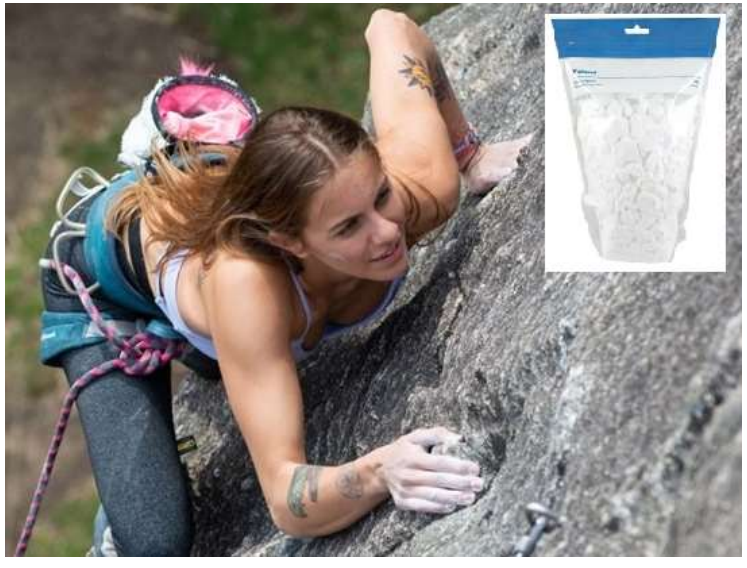
The magnesite case

We have systematically investigated representative samples from **Kraubath type** deposits imported from **Turkey (KT)** and **Greece (KG)** for use in Italian production sites of traditional ceramics.

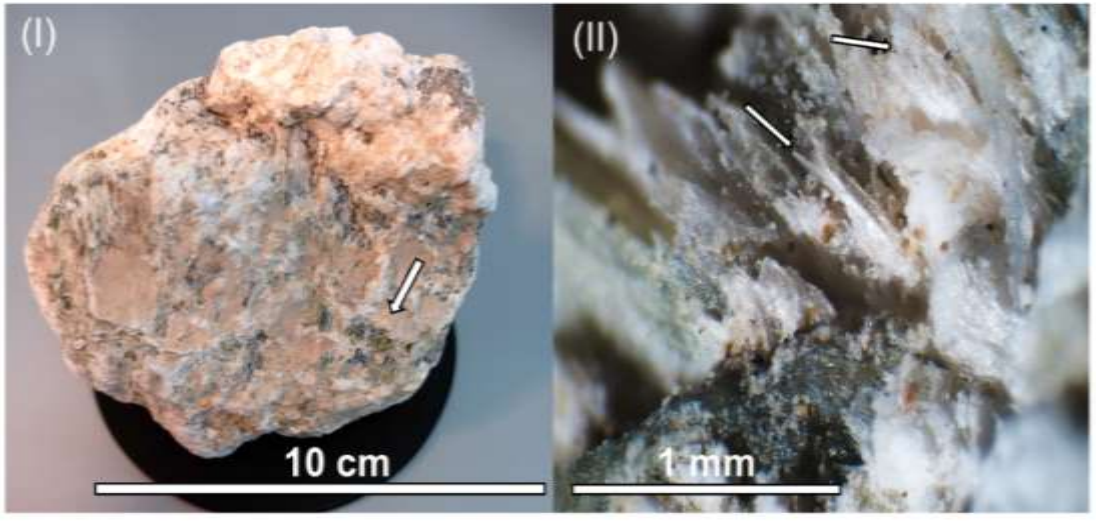
A commercial Veitsch type product from Austria and commercial magnesite powders sold by Italian retailers as anti-slip agent for sport activities such as climbing were also tested.

XRPD data
magnesite >90 wt%, serpentine <2 wt%





Sample	KT1	KG1



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The magnesite case

- The Rotterdam Convention for Hazardous Chemicals does not list chrysotile in Annex III and does not compel producers to label chrysotile.

- In the EU, the REACH compliance prohibits any intentional use of asbestos, but allows the presence of carcinogens (including asbestos) as contaminant in concentrations <0.1wt% without obligation of labelling.

- Both the Rotterdam Convention and the REACH compliance are in contrast with severe domestic laws of parties like Italy that apply zero tolerance for asbestos.

- Consequence of these legislative disagreements: ACMs may be unknowingly imported and used in countries that have banned all asbestos species.

  This situation can occur in the exploitation of certain minerals that may accidentally contain impurities of naturally occurring asbestos (NOA).

The magnesite case

Aware of the presence of asbestos

No REACH filter if chrysotile <0.1wt.% (within EU)

⇓

No Rotterdam filter to export

⇓

Italian market

⇓

Out of Italian law!

GRECIAN MAGNESITE
MINING INDUSTRIAL SHIPPING AND COMMERCIAL CO SA

45 Michalacopoulou str.,
115 28 Athens, Greece
Tel: +30 (210) 72 40 446-7, 72 16 176,
72 27 631, Fax: +30 (210) 72 49 711
V.A.T. No EL 094004975

e-mail: info@grecianmagnesite.com
www.grecianmagnesite.com

25/2/2020

Dear Customer,

We hereby declare that our magnesite products do not contain asbestos fibers above any detectable limit.

Remaining at your disposal

Kind Regards,

⇓

Italian market

⇓

Out of Italian law!

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The magnesite case: reactions

CONFINDUSTRIA CERAMICA

Circolare n° 287/2022 30/06/2022

- **Magnesite: segnalazione possibile presenza di amianto in alcune tipologie**

Categoria: Economia
Area: Ambiente
Materia: Sostanze pericolose

A seguito di analisi condotte da laboratori qualificati che operano nel nostro territorio ci è stato segnalato che in alcuni campioni di magnesite naturale di origine extranazionale, ...

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Why Italy imports out-of-law ACMs

Manufactured in a chrysotile-producing country

⇓

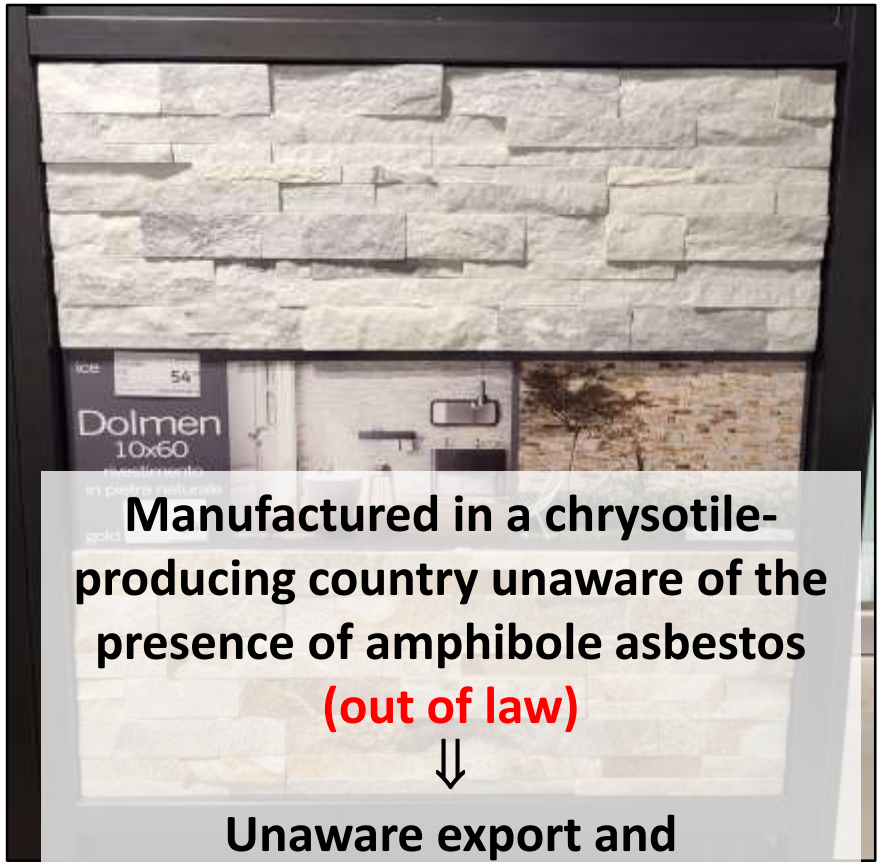
No export filter

⇓

Italian market

⇓

Out of Italian law!



Manufactured in a chrysotile-producing country unaware of the presence of amphibole asbestos (out of law)

⇓

Unaware export and REACH filters breach

⇓

Italian market

⇓

Out of Italian law!

Manufactured in a chrysotile-producing country

Unknowingly produced in a chrysotile-banning country ouside EU

⇓

No REACH filter

⇓

No export filter

⇓

Italian market

⇓

Out of Italian law!

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Possible solutions for natural raw materials?

- **Harmonized standard analytic** materials and especially those accompanied by certification c producers. The importing com check the reliability of the cert

ICA
International Chrysotile Association

For environmental
occupational health
safe and responsible use

Rotterdam Convention
COP-11 MEETING - 2023

29 Nov 2022

The Australian Government has co-sponsored a proposal with Switzerland, Mali and Burkina Faso to reform the Rotterdam Convention to facilitate the listing of chrysotile asbestos on an annex to the Convention.

The proposal seeks to establish a new annex, listing chemicals that have been found by the Chemical Review Committee to meet the criteria for listing in Annex III, but have not because the CoP has not been able to agree to their listing.

It also proposes that the Prior Informed Consent procedure for a chemical listed in the new annex would require an importing Party to provide its explicit consent to import that chemical.

The proposal will be considered at the next Conference of the Parties (CoP) 11 in May 2023.

The Proposal can be accessed from the Basel, Rotterdam and Stockholm Convention Secretariat website.

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Next meeting COP11 in Geneva, Switzerland, from 1-12 May 2023

The Rotterdam convention?

Detections of asbestos in imported goods

There’s plenty of asbestos at the bottom

- Naturally occurring asbestos (NOA) is a threat to the public health that transforms from local to geographically widespread when the fibres are present as impurity in industrial minerals that may freely circulate among states.

- We must continue the screening of commercial raw materials in search of asbestos for predictive purposes to avoid *ex post* discovering of the exposure of the population or workers through the observation of malignant mesothelioma morbidity peaks (e.g. fluoro-edenite case in Biancavilla!)

Key role/mission of geologists:
target possible asbestos-contaminated (commercial) natural raw materials


brucite


diopside


olivine


talc


vermiculite


wollastonite

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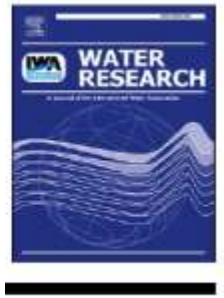
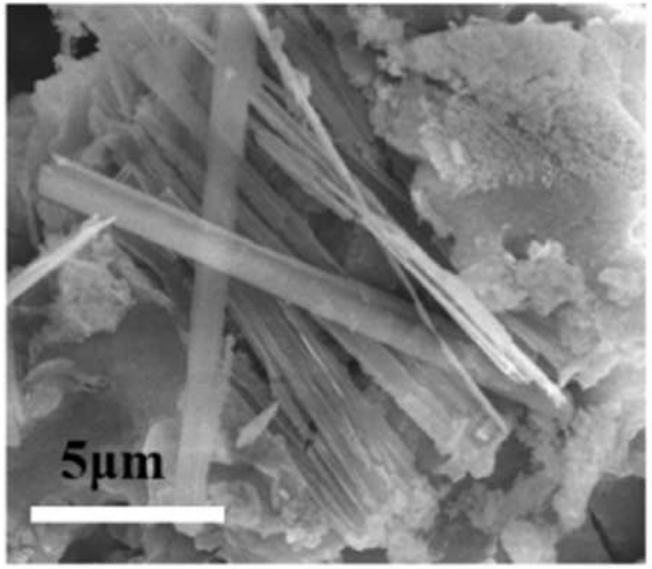
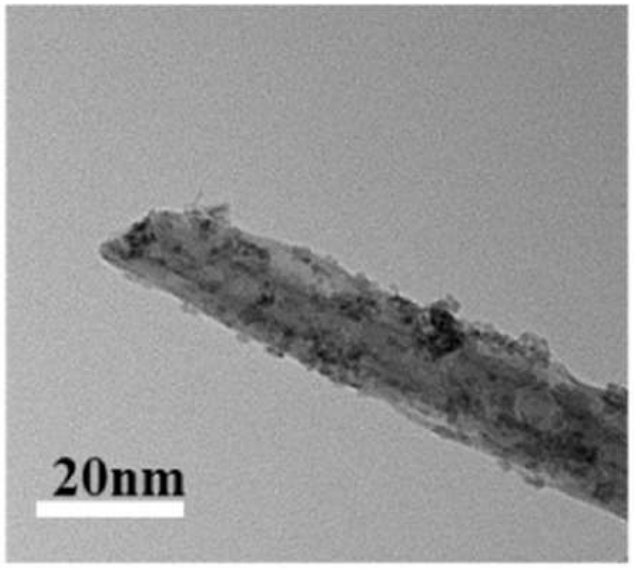
There's plenty of asbestos at the bottom (and there will be even more...)

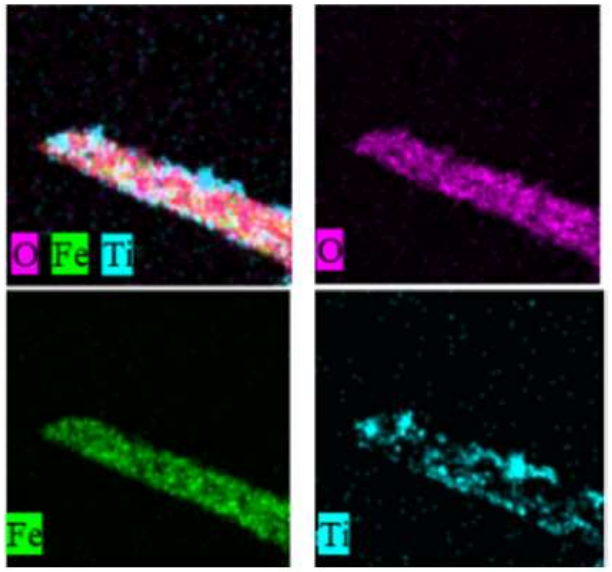
This work was financially supported by National Natural Science Foundation of China (42030702, 42077301, 42207040), the National Key R&D Program of China (2020YFC1808702) and China Postdoctoral Science Foundation (2022M710835).



A chrysotile-based Fe/Ti nanoreactor enables efficient arsenic capture for sustainable environmental remediation







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