NEWSLETTER
Newsletter from the Chrysotile Institute
For safe and responsible use of chrysotile

Volume 10, Number 1, November 2011

EDITORIAL

THE CURRENT WHO POLICY ON ASBESTOS

The current policy of the World Health Organization (WHO) **does not support a chrysotile ban**. The World Health Assembly (WHA), the supreme WHO decision-making body, adopted a resolution in May 2007 setting a "Global Plan of Action on Worker's Health 2008-2017" which can be construed as an admission that **the elimination of asbestos related diseases is achievable through the controlled use of chrysotile**.

The wording of the WHA resolution leaves little room for doubt when addressing the asbestos issue: campaigns for the elimination of asbestos-related diseases must be carried out "*bearing in mind a* **differentiated approach to regulating its various forms***, in line with relevant international legal instruments and the latest evidence for effective interventions.*"

Since chrysotile fibres are a form of asbestos **different** than amphiboles and ILO Convention 162 – the key international legal instrument on asbestos – **includes the controlled use** in the catalogue of possible risk management measures, the WHO knows that chrysotile can be used safely if handled responsively.

Unexpectedly, **the outcome of the WHA in May 2007 has been a hard knock for anti-asbestos activists** who became defiant since they launched the strategy to ban chrysotile: in 1999, the EU (27 countries) banned chrysotile; in 2003, the Occupational Health Joint Committee declared the intention to extend the ban worldwide and, finally, in 2006 ILO adopted a resolution with the same objective.

From outside and inside UN institutions (WHO, ILO, Rotterdam Convention), anti-asbestos activists have been **behind this strategy for years** and they had never thought that WHO would adopt this position in May 2007.

The adoption of a "Global Plan of Action on Worker's Health 2008-2017" by the WHO appeared as another step for the anti-asbestos activists to use international institutions for their purposes, that is to say, to have a chrysotile ban blessed at the highest level. In previous actions (i.e. by promoting objective of the ILO resolution in 2006 which contradicts the ILO Asbestos Convention 162), the activists have acted decisively, even at the risk of undermining the credibility of UN institutions themselves.

After a lively discussion that took place among the representatives of some WHO member states during the May 2007 WHA, **the possibility of a wording containing a chrysotile ban was discarded**. Instead, the resolution WHA60.26 setting a "*Global Plan of Action on Worker's Health 2008-2017*" laid down a "differentiated approach" between amphiboles (not commercialised nowadays) and chrysotile (currently produced and used in many countries by a population representing 2/3 of the humanity).

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THE CURRENT WHO POLICY ON ASBESTOS - (continued)

Far from becoming discouraged, those who were working against chrysotile for years within the ILO and WHO, decided to speed up the work started in 2003 in the Occupational Health Joint Committee: An "*Outline for the Development of Programmes for Elimination of Asbestos-Related Diseases*", was uploaded in September, 2007 by the WHO website only three months after the adoption of the WHA resolution. The inconsistency of the Outline has been analysed and its contents still are "alive and kicking" since the *Global Work Plan (2009-2012)* implementing the WHA resolution.

An analysis of the Global Workplan shows a number of inconsistent projects carried out in the current 2009-2012 period where the objective of the elimination of asbestos-related diseases is used as **an instrument** to ban chrysotile.

There is **no one single project** reported in the Global Workplan (June 2011 Edition) related to the controlled and responsible use of chrysotile as another way to tackle asbestos-related diseases among the occupational population.

The reaction of the activists, after the WHA held in May 2007, is worrisome and must be denounced before the competent authorities through the appropriate channels. This is also the case of the ILO Resolution adopted in 2006, although here **ILO has recognized that a resolution cannot amend, override or modify an ILO Convention**, namely, the Asbestos one.

The WHO Director-General will report to the Health Assembly through the Executive Board, at its 132nd (2013) and its 142nd (2018) sessions, on progress made in the implementation of the Global Plan.

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GLOSSARY

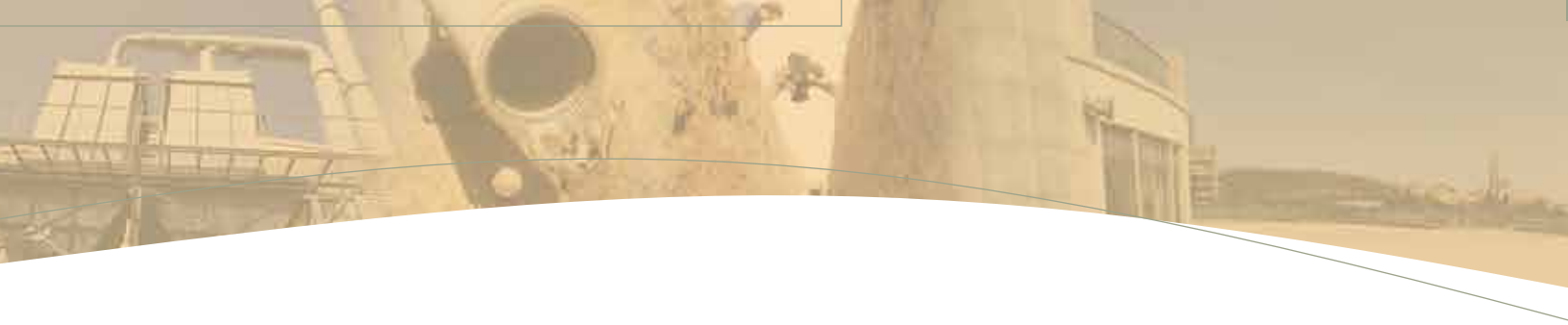
Asbestos:
A set of six naturally occurring silicate minerals (those belonging to the serpentine class: chrysotile; and those belonging to the amphibole class: amosite, crocidolite, tremolite, anthophyllite and actinolite) exploited commercially for their desirable physical properties. Asbestos became increasingly popular among manufacturers and builders in the late 19th century because of its sound absorption, average tensile strength, and its resistance to fire, heat, electrical and chemical damage. It was used in such applications as electrical insulation for hotplate wiring and in building insulation.

Chrysotile:
A soft, fibrous silicate mineral in the serpentine class of asbestos. Chrysotile fibres have considerable tensile strength, and may be spun into thread and woven into cloth. They are also resistant to heat and are excellent thermal, electrical and acoustic insulators.

Differentiated Approach:
The Global Plan establishes that the campaigns for the elimination of asbestos-related diseases must be carried out "bearing in mind a differentiated approach to regulating its various forms". This nuance, which was introduced in the final text of the Global Plan during the debate of the 60th WHA, refers to the fact of considering all the scientific evidence to the elimination of harmful forms of asbestos, in minimizing risks to the health of workers.

Global Plan of Action on Workers' Health (2008-2017) (Global Plan):
The 60th WHA adopted on May 23rd, 2007, a resolution dealing with the improvement of working conditions. The main objectives of the Global Plan are to strengthen the governance and leadership function of national health systems to respond to the specific health needs of working populations, to establish basic levels of health protection at all workplaces to decrease inequalities in workers health between and within countries and strengthen the promotion of health at work, to ensure access of all workers to preventive health services and link occupational health to primary health care, to improve the knowledge base for action on protecting and promoting the health of workers and establish linkages between health and work, and to stimulate incorporation of actions on workers health into other policies, such as sustainable development, poverty reduction, trade liberalization, environmental protection and employment. The Global Plan is implemented by the Global Workplan of the Collaborating Centres in Occupational Health for 2009-2012 (June 2011 Edition).

Global Workplan of the Collaborating Centres in Occupational Health for 2009-2012 (June 2011 Edition) (Global Workplan):
The Global Workplan is a working document, developed by WHO in collaboration with the WHO Network of Collaborating Centres, based on the objectives of the Global Plan, for the period 2009-2012. The Global Workplan consist of several documents: a summary of priorities, a summary of project titles, a grid listing of collaborating centre projects, a compendium of project descriptions, and a facilitating project document indicating anticipated 2012 products. The Global Workplan organizes the activities of the Collaborating Centres into 5 objectives and 14 priority areas.



GLOSSARY - (continued)

International Labour Organization (ILO):
The ILO is the international organization responsible for drawing up and overseeing international labour standards. It is the only 'tripartite' United Nations agency that brings together representatives of governments, employers and workers to jointly shape policies and programmes promoting decent work for all. This unique arrangement gives the ILO an edge in incorporating 'real world' knowledge about employment and work.

ILO/WHO Joint Committee on Occupational Health:
The ILO/WHO Joint Committee was created in 1950 to provide guidance to the ILO and WHO regarding international occupational health issues. It is composed of members and observers from both organizations, who gather together in sessions and where they adopt some reports and working documents. One of these working documents is the Outline for the Development of National Programmes for Elimination of Asbestos-Related Diseases (NPEAD).

Outline for the Development of National Programmes for Elimination of Asbestos-Related Diseases (Outline):
The Outline is a working document published on September 2007, prepared and released by members and observers from the ILO and those from WHO, during the 13th Session of the Joint ILO/WHO Committee on Occupational Health, held in Geneva in 2003. The Outline intends to facilitate countries, particularly those that still use chrysotile asbestos, in establishing their National Programmes for Elimination of Asbestos Diseases (NPEAD). The Outline considers that the most efficient way to eliminate asbestos-related diseases is to stop the use of all types of asbestos. It also addresses countries' efforts to prevent asbestos-related diseases arising from exposure to the various forms of asbestos already in place and as a result of their use in the past.

World Health Assembly (WHA):
The World Health Assembly is the supreme decision-making body for WHO. It generally meets in Geneva in May each year, and is attended by delegations from all 193 Member States. Its main function is to determine the policies of the Organization. The Health Assembly appoints the Director-General, supervises the financial policies of the Organization, and reviews and approves the proposed programme budget. It similarly considers reports of the Executive Board, which it instructs in regard to matters upon which further action, study, investigation or report may be required.

World Health Organization (WHO):
WHO is the directing and coordinating authority for health within the United Nations system. It is responsible for providing leadership on global health matters, shaping the health research agenda, setting norms and standards, articulating evidence-based policy options, providing technical support to countries and monitoring and assessing health trends.

NO RESPONSE FROM THE WHO

In August 2011, the Chrysotile Institute wrote to the World Health Organization (WHO) to request clarifications on the famous statistic of 100 000 deaths from asbestos each year. To date, the WHO has not responded to our letter, which is copied below.

"Many organizations and many countries have asked, repeatedly, that the WHO explain how they can confirm, based on reliable scientific data, that 100,000 people will die each year worldwide, from asbestos-related diseases. To this day, a reply from your organization is still awaited.

Once again, and this time at the Rotterdam Convention COP V meetings in Geneva last June, the same question was asked by participants requesting confirmation of the above allegation being peddled about by anti-asbestos activists working within the WHO, the ILO and other organizations, including the vast anti-asbestos lobby.

On June 24, 2011 you sent an e-mail to certain representatives who had requested an answer from the WHO.

> " Dear All,
> As requested, I am providing information on where to find WHO burden of disease estimates and methods. Please see… "

This enabled us to look into the WHO data base of references on methods of estimation from a document entitled "Health Statistics and Health Information Systems". Unfortunately, the statistics and the new or more recent publications referred to oblige us to conclude that you have failed to confirm 100,000 people will actually die each year from asbestos exposure. We believe this statistic, widely used and peddled, is not based on science. The references are mostly commentaries, opinions, suggestions, estimates, or extrapolations and not scientifically based

NO RESPONSE FROM THE WHO - (continued)

data. In fact, the number of 100,000 people will die each year worldwide is just an estimate.

On this subject, it is important to remember that, at the 95th Session of the ILO in June 2006, the representative from the Untied States of America asked the following question:

> ***Preambular Paragraph 3***
> ***332.*** "The Government member of the United States asked if the figure of 100,000 deaths a year could be justified"
> http://www.ilo.org/public/english/standards/relm/ilc/ilc95/pdf/drafrep-css.pdf

The response to this question to date lacks fundamental explanation, lacks scientific basis and in no way validates this number, reported ad nauseam, by militants and the anti-asbestos lobby. Furthermore, nowhere is it taken into account that there is a difference between the asbestos fibre types (amphiboles & serpentine), yet this difference exists (Hodgson JT, Darnton A. *The quantitative risks of mesothelioma and lung cancer in relation to asbestos exposure.* Ann. Occup. Hyg. 200 Dec.:44(8):565-601).

With a little investigative work, one can pretty well find the exact origin of this 100,000 deaths statement. In an Editorial, published in 2004 by Treasure (Dr. J. Peto, co-author), in the BMJ, it is stated that: "***In the developed world alone 100,000 people alive now will die from it.***" This is in reference to asbestos, all types of asbestos and the people living at that time who would eventually die. It is not a statement on chrysotile or annual deaths.

For the first time at the "Dresden Declaration on the Protection of Workers Against Asbestos Conference," a presentation by Mr. J. Takala, a well-known anti-asbestos activist, using statistics from Finland mentions this number of 100,000 deaths/year worldwide.

> "Finland has an estimated 209 lung cancer fatalities caused by asbestos every year and 42 cases of mesothelioma. On average this means 9.9 cases of lung cancer and 2 cases of mesothelioma per 100,000 workers. If we use these rates and apply them to other rather well developed OSH systems and to developing countries we would come to estimated numbers of death caused by asbestos, shown in the table below.
> **Estimated deaths – 100,000**"

However, Mr. Takala adds — and this confirms that it is only an extrapolation on his part:

> "In total, there could be some 100,000 work-related deaths caused by asbestos. **These figures are not recorded cases but estimates**".

NO RESPONSE FROM THE WHO - (continued)

Since this conference was held, the number of 100,000 deaths/year has been used in the crusade by anti-asbestos activists who promote a global ban of asbestos – including chrysotile.

You will note the well-planned evolution of the use of this number. At the beginning, it is estimated that 100,000 people from industrial countries could die of an asbestos related disease, which then evolves into being *100,000 deaths per year* worldwide *because of asbestos*, and now they want this number to apply to chrysotile. Science does not appear to be involved in this evolution.

It appears to us that the responsible action by the WHO should be to identify the published scientific studies which have been peer reviewed and which demonstrate with precision and exactness the validity of their statistics, taking into account the difference between the amphiboles and serpentine (chrysotile). If the WHO is aware of a study or studies which scientifically prove that a person having an occupational exposure to chrysotile (of 1.00 f/cc and below) and carries a measureable risk, they should also disseminate this information.

Moreover, many scientific studies, peer reviewed and published, consulted and analysed indicate that at such a low level of exposure, the risk is so low as to be non measurable. Since the anti-asbestos movement is attempting to prove that there is no acceptable level of exposure to asbestos, we would like the WHO to send us any pertinent information they have on this subject.

New European Union Directive

The Chrysotile Institute understands that the WHO is responsible, amongst others, to guide or identify better work practices or implementing worker safety protection measures.

We would like to bring to your attention an important amendment to Directive 2009/148/EC of the European Parliament and Counsel, on the Protection of workers from the risks related to asbestos exposure. This is in regard to the omission of Recital (2) from Directive 2003/18/EEC after the codification procedure, which established the obligation of implementing a preventive approach in the use of asbestos substitutes. This new directive came into force in 27 countries of the European Union in January 2010.

In spite of the many interventions on our part before the European Commission, we are still waiting for a logical answer to such a change. Also despite the objections raised by the workers and contractors of 27 countries of the European Union and within European Economic and Social Committee (EESC), this important part has finally disappeared from the legislative text.

You will note that Recital (2) from Directive 2003/18/EEC, underscores the importance of a preventive approach to the use of asbestos substitutes. This approach is particularly important that workers who are exposed to substitute fibres and products nowadays, mostly in Europe, should be aware that they could pose health problems. This judicious and necessary warning suddenly disappeared from Directive 2009/148/EEC. The WHO is certainly not, or cannot afford to be, insensitive, to the potential risks of exposure to substitute products and fibres to which are exposed millions of people worldwide. We would like to know the fundamental reason which would have motivated such a decision (very surprising) which should worry the competent occupational health and safety authorities.

A lot of effort can go into hoping to ban asbestos or stopping its use, but it seems reasonable to ask that at the same time that all alternative products and fibres carrying a potential health risk should be controlled as strictly as possible. It seems logical to us that these fibres which do have a potential health risk should be subject to the same regulations as chrysotile. As we understand that the concerns raised

NO RESPONSE FROM THE WHO - (continued)

by the EESC have not been taken into account, we would like your comments on this subject.

This important omission, taking into account that millions of Europeans are actually exposed to substitute products and fibres, cannot leave us indifferent. In too many instances there are no studies or scientific data demonstrating their innocuousness or even their potential level of health risk.

Considering all the efforts deployed in Europe against the use of asbestos, in the name of health, and the approach taken by the European Union regarding other potential replacement fibres and products, for example crystalline silica (the EU permits users to conclude a voluntary accord instead of regulating), we understand that there are two measures: it is evidently incoherent

Science must be the guiding principle

Vigilance and controls regarding environmental and occupational exposures is needed, but the allocation of diminishing resources for research and setting of public health priorities should be data-driven, not based on unsubstantiated or exaggerated claims.

For many, many years various organizations working in the occupational health and safety field, including some international organizations have asked that new, scientific studies be undertaken on the inherent risk of using chrysotile in comparison with other substitute fibres and products actually available on the international market.

The European Commission Directive 1999/77/EEC, dated 26 July 1999, addressed this issue. On many occasions, the fact that replacement fibres and products have not always been adequately evaluated as to their potential dangerousness was preoccupying. International organizations such as International Agency for Research on Cancer (IARC) and the Scientific Committee on Toxicity, Ecotoxicity and the Environment (SCTEE), have also requested this scientific evaluation. (See attached reference.)

A genuine comparative risk assessment is necessary. It should cover the systematic review of studies (meta-analysis) in epidemiology and toxicology to evaluate the health effects of chrysotile compared to amphibole fibres and others found on the market. This evaluation should be undertaken by a well-balanced team of experts in this field, and among other things, take into account contemporary work practices and potential exposures in comparable situations to obtain exact and credible data. This is a fundamental update which will help make clear decisions on the use of chrysotile, or replacement fibres or products whose risk must also be well and scientifically documented.

Society has the responsibility of drawing the best conclusions taking into account risks and needs. It

NO RESPONSE FROM THE WHO - (continued)

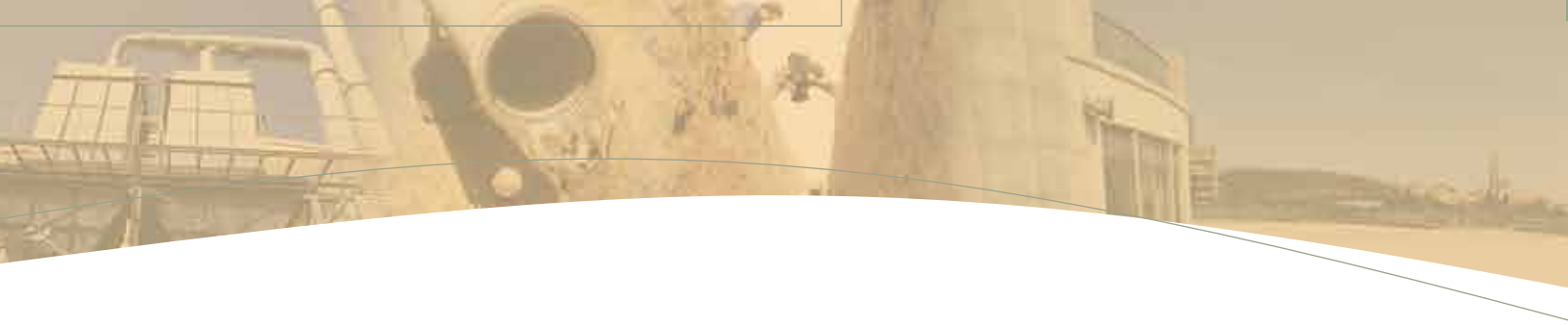
must be accepted that the chrysotile file has truly evolved over the years. Without minimizing the potential risk, its use today is different. In Quebec, for example, the work conditions and practices such as production methods are not at all similar as those of the unfortunate past. Amphiboles are no longer used. Sprayed-on methods are no longer permitted. Chrysotile is the only fibre used and this in high-density products that are not friable and in which the fibre is locked-in, therefore not airborne.

The work environment in the mines and mills is well controlled and under constant surveillance. We understand that large chrysotile industrial plants in other countries also control their work place environments.

The numerous health problems encountered in Europe, North America or Japan are related to conditions and work practices that are no longer permitted. It is not true that there is nowhere in the chrysotile industries where its safe use is not possible.

Activists calling for a global ban of chrysotile insist that chrysotile is so dangerous, even if it is a crucial element in the economies of some developing or emerging countries, its production must be stopped and this as soon as possible.

Faced with this radical claim, lacking scientific documentation, all safe use approach is fought over, even if it is the answer to huge needs. The rhetoric, often with an extremist flavour, setting themselves up as judges of good and evil, may become bad advisors to competent authorities when calling for change of orientation or hasty decisions. Consideration must be given to the lack of studies regarding the evaluation of risk associated with the use of chrysotile on one side and replacement fibres on the other. The approach to be taken to reach a



NO RESPONSE FROM THE WHO - (continued)

final and clear decision must be dictated by science and not by political pressure and perceptions. This is why the Chrysotile Institute proposes that the World Health Organization undertake genuine scientific evaluations based on real risk, as described above, and we are hoping that this new request will finally receive a positive reply.

In today's, often very distressed world, we are presented with the consequences of the disparity between the rich and the poor, and a mind-boggling reality where 1.5 billion humans do not have access to potable water and 2.5 billion without access to basic hygienic infrastructure. In South-East Asia and in Africa, diarrhoea is responsible for no less than 8.5% and 7.7% of the deaths (UNDP Report 2006). This translates into more that 8 million people who die each year for this reason and approximately 2 million children. This is no longer poverty, it is great misery.

In this world where we use thousands of products and substances, dangerous to health or potentially fatal or carcinogenic, instead of asking for bans, we have learned to use them as safely as possible. This is the case in Europe, for example using silica which is both dangerous and carcinogenic, and demonstrates that taking precautions and implementing safe and controlled use works. With the help of rich countries, why not make this a possibility to developing or emerging countries?

Today, countries which use chrysotile fibre represent two-thirds of humanity. It is those developing and emerging countries who are making great efforts to provide their populations with a better quality of life. To do this they need quality fibres and products, requiring little energy to produce, durable, well adapted to their reality at an affordable price and creators of jobs. Before banning chrysotile, which answers all these criteria, it is very probable that the most promising approach to take is one of support and guidance in the transmission of expertise in the responsible and safe use methods and good work practices.

To do this, the Chrysotile Institute has been asking for a long time now and is asking again that the WHO review the most recent science, and notwithstanding the ferocious campaign by the anti-asbestos lobby over the past several years, undertake a solid research study to establish the real risks for all industrial fibres, especially those not as well controlled as chrysotile. Only when this is done can competent authorities of concerned countries obtain reliable solutions on which to base their decisions, other than that dictated by propaganda or misperception.

We thank you in advance for your attention to the above and hope to hear from you at your earliest convenience."

A REVIEW OF THE WHO'S DOCUMENT ON THE ADVERSE HEALTH EFFECTS OF EXPOSURE TO ASBESTOS AND WHO'S RECOMMENDATIONS ON THE PREVENTION OF ASBESTOS-RELATED DISEASES

The WHO's Program on Occupational Health has issued a document on the Elimination of asbestos-related diseases. They state that "This document reviews the adverse health effects of exposure to asbestos and WHO's recommendations on the prevention of asbestos-related diseases." The scientific basis for the statements therein are evaluated and the conclusions discussed in light of the published scientific literature to date and the latest declarations of the World Health Assembly (WHA).

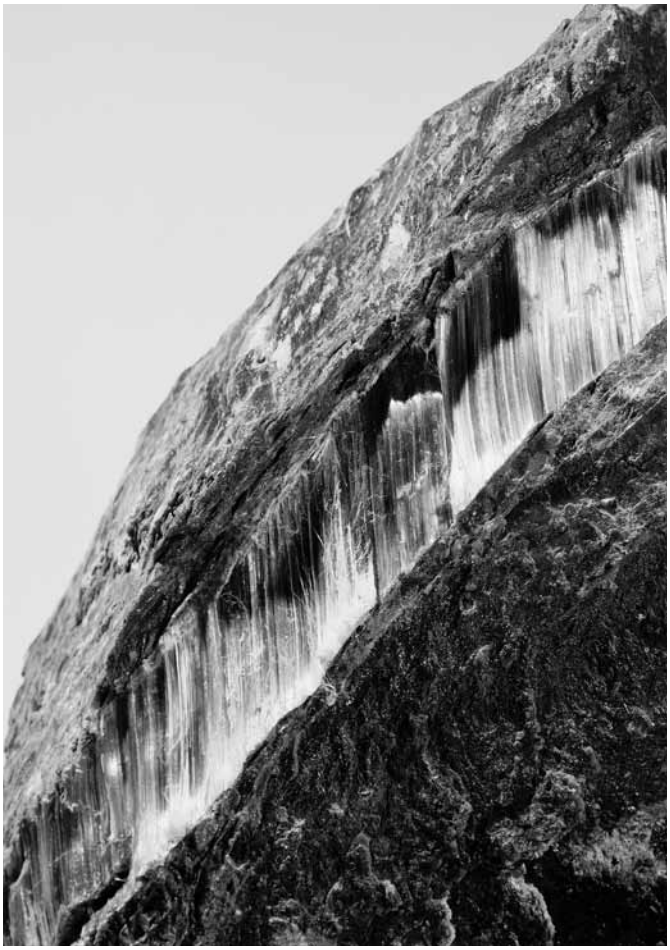
In the WHO's World Health Assembly in May 2007, a differential approach in the elimination of such disease was presented in the `Workers' Health: Global Plan of Action (WHA60.26). This approach states that "Its activities will include global campaigns for elimination of asbestos-related diseases – bearing in mind a differentiated approach to regulating its various forms – in line with relevant international legal instruments and the latest evidence for effective interventions…"

The WHO document on the "Elimination of asbestos-related diseases" which addresses WHO's recommendations on the prevention of asbestos-related diseases refers only to the previous World Health Assembly Resolution 58.22 from 2005 and not to the revised approach in the GLOBAL PLAN OF ACTION ON WORKERS' HEALTH 2008–2017 that was agreed upon in the May 2007 meeting.

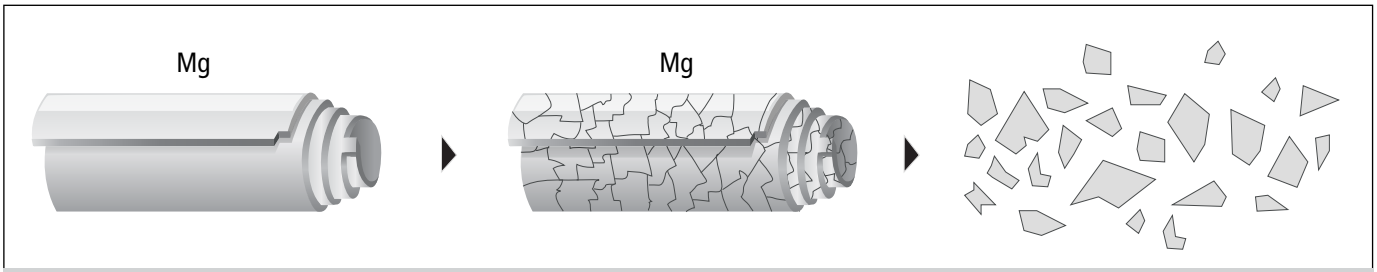
The Term Asbestos:

The term "asbestos" is a trade name and does not describe a specific mineralogical species. The WHO document mentions that there are two types of minerals, serpentine and amphibole, however, this is as far as the differentiation is made. The WHO document on the "Elimination of asbestos-related diseases" in fact persists for the most part in using the term 'asbestos' and attributing the effects of the amphiboles unilaterally to chrysotile as well. A differentiated approach to regulation cannot be achieved as long as the two minerals, chrysotile/serpentine and amphibole are not specifically identified throughout.

The two types of minerals have considerably different mineralogical characteristics and biological response when inhaled and therefore should be considered



A REVIEW OF THE WHO'S DOCUMENT ON THE ADVERSE HEALTH EFFECTS OF EXPOSURE TO ASBESTOS AND WHO'S RECOMMENDATIONS ON THE PREVENTION OF ASBESTOS-RELATED DISEASES - (continued)



Chrysotile Fibre Disintegration

separately (Bernstein & Hoskins, 2006). The WHO states that the "asbestos" fibres are "relatively resistant to chemical attack", yet Pundsack in 1955 described how chrysotile in contrast to amphibole disassociates in water is readily attacked by acid. More recently, Wypych (2005) presented scientific evidence that the particles that result when the chrysotile breaks apart following acid treatment are composed of amorphous silica.

The serpentine fibre is a thin sheet silicate (~8 angstroms in thickness) which in fibre form is rolled like a sheet of paper. The magnesium in the sheet is water soluble (as an example in the lung surfactant) and the silica structure breaks apart in an acid environment (which can occur when the macrophage tries to phagocytise the fibre). Numerous studies in the past few years have shown that this combination of characteristics results in the chrysotile quickly falling apart in the lung once inhaled (Bernstein et al., 2004, 2005a, 2005b).

In contrast, amphibole fibres are solid double chain silicates which are not susceptible to chemical attack. Amphibole fibres are not rolled structures but solid cylindrical shapes encased by a solid silica layer. They are not soluble in water and have extremely low solubility in even in hot acid (Speil and Leineweber, 1969). As they are not susceptible to chemical attack the long fibres that the macrophage can not fully phagocytise and remove will persist in the lung once inhaled (Hesterberg, et al., 1998; Bernstein et al., 2005b).

Differentiated approach to health effects:

There is no question that "Exposure to asbestos and its impacts on public health are substantial". Long fibre amphiboles are very persistent potent carcinogens and as used by many countries in the past are responsible for substantial asbestos-related diseases. In many countries this use continued into the 1990s well after it was understood that the amphiboles were very potent carcinogens. However, the substantial evidence that chrysotile is less potent than amphiboles is largely ignored in the WHO document on "Elimination of asbestos-related diseases" even though some of this information is cited in the references to the document.

Grouping the two minerals (referred to as asbestos) together is very misleading. In fact when the two mineral types serpentine (chrysotile) and amphibole are considered separately in the WHO report by Concha-Barrientos et al., 2004 (1) the authors summarise Steenland et al. (1996) in the section on asbestos on page 1687 stating that:

A REVIEW OF THE WHO'S DOCUMENT ON THE ADVERSE HEALTH EFFECTS OF EXPOSURE TO ASBESTOS AND WHO'S RECOMMENDATIONS ON THE PREVENTION OF ASBESTOS-RELATED DISEASES - (continued)

"In six cohort studies of nearly 6,000 asbestosis patients, the standardized mortality rate ranged from 3.5 to 9.1, with a combined relative risk of 5.9. In 20 studies of over 100,000 asbestos workers, the Standardized Mortality Rate (SMR) ranged from 1.04[1] for chrysotile workers to 4.97 for amosite workers, with a combined relative risk of 2.00. It is difficult to determine the exposures involved because few of the studies reported measurements, and because it is a problem to convert historical asbestos measurements in millions of dust particles per cubic foot to gravimetric units. Nevertheless, little excess lung cancer is expected from low exposure levels."[2]

The SMR estimates for chrysotile alone is based upon exposures as they occurred 30 to 50 years ago. As the WHO report states, at the controlled low level exposure conditions such as exist today "little excess lung cancer is expected from low exposure levels." It should be noted as well that this is the only time in the text of WHO's Concha-Barrientos et al., 2004 report that chrysotile is specifically mentioned. This is very important today, as the WHO report states only chrysotile is used commercially today.

The choice by WHO of citing only the Steenland et al. (1996) paper is somewhat confusing. Steenland et al. (1996) makes no attempt to assess each of the studies cited in terms of the validity and accuracy of the exposure indices and to which fibres the workers were actually exposed. More recent evaluations of the epidemiological studies on 'asbestos' by Hodgson & Darnton (2000) on the quantitative risks of mesothelioma and lung cancer in relation to asbestos exposure and the Hodgson et al (2005) review on the expected burden of mesothelioma mortality in Great Britain from 2002 to 2050 both clearly demonstrate that the incidence of mesothelioma can be explained by the amphibole asbestos exposure alone. The Hodgson & Darnton (2000) evaluation is examined by Driscoll (2005) and is cited by the WHO in their opening paragraph as reference (2).

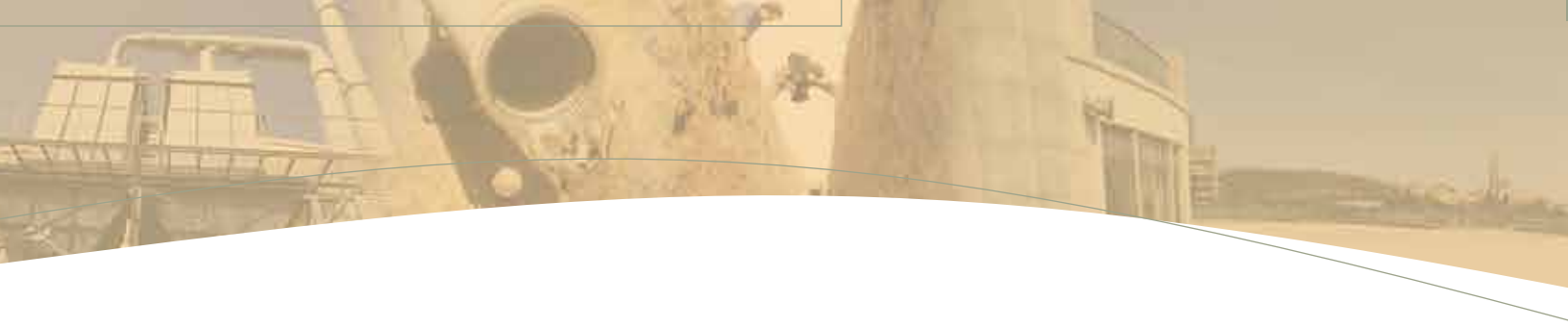
Yet the WHO's paper ignores the details summarised in the Driscoll (2005) publication in discussing epidemiology. Driscoll (2005) states that:

"Assuming a mixed fibre type, the lifetime risk of death from malignant mesothelioma is approximately 100 per 100,000/fibre.year per ml. (This combined estimate is based on best estimates of risk of 400 per 100,000/fibre.year per ml for crocidolite, 65 per 100,000/fibre.year per ml for amosite and 2 per 100,000/fibre.year per ml for chrysotile, and the changing mixture of amphiboles and chrysotile that has characterised exposure 20 and 50 years ago [Hodgson and Darnton, 2000].)"

Further confirmation that chrysotile can in fact be used safely is reported in a recent publication in which WHO (IARC) participated on a multicenter case-control study in Europe on the occupational

[1] The standardized mortality rate ranged from 1.04 for chrysotile workers was reported by Newhouse and Sullivan (1989) as 1.04 with 95% C.I. of 0.88-1.18 for 12,571 workers in chrysotile friction products and by Neuberger and Kundi (1990) as 1.04 with 95% C.I. of 0.79-1.41 for 2,816 chrysotile cement plant workers.

[2] The reference to the 20 studies of over 100,000 asbestos workers is apparently from Steenland K, Loomis D, Shy C, Simonsen N (1996) Review of occupational lung carcinogens. American Journal of Industrial Medicine, 29:474–490.



A REVIEW OF THE WHO'S DOCUMENT ON THE ADVERSE HEALTH EFFECTS OF EXPOSURE TO ASBESTOS AND WHO'S RECOMMENDATIONS ON THE PREVENTION OF ASBESTOS-RELATED DISEASES - (continued)

exposure to asbestos and man-made vitreous fibres and risk of lung cancer as reported by Carel et al. (2006). The authors conclude that "In this large community-based study occupational exposure to asbestos and MMVF does not appear to contribute to the lung cancer burden in men in Central and Eastern Europe." The chrysotile asbestos used in Central and Eastern Europe was imported from Russia where nearly all commercial production is of chrysotile. The Russian chrysotile has been reported to have little tremolite.

Inconsistencies in the report with the differentiated approach:

The differentiated approach to regulating the various forms of asbestos is not reflected in the WHO document. While some of the references cited never even mention chrysotile specifically (e.g. references nos. 3, 8 & 15), others blur their findings by mentioning chrysotile and amphiboles and then using the term 'asbestos' when attributing effects (e.g. references nos. 7, 15).

As mentioned above, reference 2 provides a summary of the most recent evaluation of the quantitative risks of mesothelioma and lung cancer in relation to asbestos exposure, which clearly differentiates chrysotile from amphiboles yet there is no mention of these results. This difference is further substantiated by the recent study published by Carel et al. (2006).

In reference (5) the WHO's Environmental Health Criteria 203 on Chrysotile Asbestos (1998), chapter 11 entitled: "Further Research" outlines research that was considered by the IPCS to be important. Ten years later, much of this research has been performed, yet, none is mentioned by WHO in their document on elimination of asbestos disease.

The WHO states that "In its various applications, asbestos can be replaced by some fibre materials (15) and by other products which pose less or no risk to health." Reference 15 refers to a workshop convened in 2005 by WHO/IARC to assess the carcinogenicity of chrysotile substitutes, the report of which is still not published. No comparative evaluation was performed of any of the fibres with chrysotile and for most of the fibres evaluated there was a clear lack of studies to assess their toxicological potential.

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[3] (a) Research and guidance are needed concerning the economic and practical feasibility of substitution for chrysotile asbestos, as well as the use of engineering controls and work practices in developing countries for controlling asbestos exposure.

(b) Further research is needed to understand more fully the molecular and cellular mechanisms by which asbestos causes fibrosis and cancer. The significance of physical and chemical properties (e.g., fibre dimension, surface properties) of fibres and their biopersistence in the lung to their biological and pathogenic effects needs further elucidation. Dose–response information from animal studies for various asbestos fibre types is needed to evaluate the differential risk of exposure to chrysotile and tremolite.

(c) Epidemiological studies of populations exposed to pure chrysotile (i.e. without appreciable amphiboles) are needed.

(d) The combined effects of chrysotile and other insoluble respirable particles needs further study.

(e) More epidemiological data are needed concerning cancer risks for populations exposed to fibre levels below 1 fibre/ml, as well as continued surveillance of asbestos-exposed populations.

A REVIEW OF THE WHO'S DOCUMENT ON THE ADVERSE HEALTH EFFECTS OF EXPOSURE TO ASBESTOS AND WHO'S RECOMMENDATIONS ON THE PREVENTION OF ASBESTOS-RELATED DISEASES - (continued)

Conclusions:

Recognizing the difference between these two minerals is integral to achieving effective health and worker protection. Today, only chrysotile is used and mostly in high density cement products. However the extensive use of amphiboles in the past remains with us today. The risk of cancer from exposure to long fibre amphiboles is severe. Without recognizing the fibre type and the differences in potency, effective health prevention and elimination of disease cannot be achieved. If chrysotile is treated the same as amphiboles then preventing exposure to the very dangerous amphiboles becomes nearly impossible.

NEW PERSPECTIVE ON THE ROTTERDAM CONVENTION

At the meeting of the Conference of the Parties to the Rotterdam Convention in June 2011, a discussion was planned on including chrysotile in Annex III. To make that decision, there must be consensus among the countries, which was not the case. It is important to understand that products that are widely used throughout the world, like petroleum or silica, will never be placed on that list, regardless of the risk they pose, because listing them would more or less amount to a ban, which is inconceivable for all countries. It is clear, therefore, that countries calling for adding chrysotile to the list would not suffer any economic harm from its being banned—quite the contrary!

Moreover, since 2006, the European Parliament has had a new regulatory regime called REACH (Registration, Evaluation and Authorisation of Chemicals). The regime covers all chemical substances, manufactured or imported, existing or new, and makes industry responsible for evaluating and managing the risks posed by these products and providing adequate safety information to users. 100,000 products are registered. Despite the overall philosophical similarities, the rules are very different than those of the Rotterdam Convention. With the REACH regime, manufacturers are the judge and judged when it comes to responsibility for evaluating and managing the risks posed by the chemical substances they produce, which enables them to argue for continuing to use certain substances rather than others. This therefore gives a commercial advantage to the European market, which can propose alternatives that are not necessarily as effective and with nothing to indicate that they are not dangerous. Between the REACH regime and the Rotterdam Convention, there is a double standard that definitively proves that when it comes to chrysotile, commercial interests are never far away.

ROTTERDAM CONVENTION TRADE UNION STATEMENT

At the meeting on the Rotterdam Convention that was held in Geneva in June 2011, the International Trade Union Movement for Chrysotile (ITUM), which represents hundreds of thousands of chrysotile mine and processing workers, as well as companies that support the safe use of this product, made known its strong opposition to chrysotile being included among the substances on the Rotterdam Convention's (Annex III) list of dangerous products to be banned or excluded from market.

These workers are primarily from countries such as Brazil, Russia, India, China, Kazakhstan, Kyrgyzstan, Canada, Mexico, Peru, Ecuador, Colombia, Bolivia and Quebec chrysotile workers."

According to ITUM, inclusion would translate into the necessity for exporting and importing countries to extensively document all specific shipments of chrysotile from one country to another. This is not necessary as chrysotile is a very well-known, naturally occurring substance, whose impact on human health has been extensively studied for decades. There are relatively few buyers and sellers. The companies that trade in chrysotile and the governments that regulate this trade in exporting and in importing countries know very well how to handle this substance safely. International transportation of chrysotile is already regulated by a stringent protocol and exporting companies are bound by agreements with their respective governments to export only to responsible users that can demonstrate they use it safely.

Workers in many countries fought long and hard to achieve safe and controlled use of chrysotile. They know how to use it in a safe manner and they intend to keep doing so.

The latest scientific studies, including numerous studies published in peer-reviewed scientific journals in the past decade alone, strongly supports the following views:

1- Chrysotile is significantly less hazardous than the amphibole forms of asbestos;

2- When properly controlled and used, chrysotile asbestos in its modern day high density applications does not present risks of any significance to public or worker health.

Unnecessary administrative complications become trade barriers. The strongest proponents of inclusion of chrysotile in Annex III are avowed advocates of a complete ban on chrysotile. Most substances included in Annex III are eventually banned.

"The people of many countries would pay the biggest price," said Andrey Kholzakov, chairman of International Trade Union Movement for Chrysotile - ITUM. Not only would they loose the jobs involved in the mining, trade and manufacturing of chrysotile and chrysotile-containing products, but the population

ROTTERDAM CONVENTION TRADE UNION STATEMENT - (continued)

would suffer because chrysotile products answer many of their essential needs such as sanitary infrastructures or housing. ”

Today a number of organizations are trying to confuse the world’s public opinion, stating that consensus has been achieved on the question of banning chrysotile asbestos. Our Trade Union Movement rejects such an approach. There is no consensus either in political, scientific or trade union circles. And despite the pressure on behalf of the European Union and organizations representing anti-asbestos lobby at COP V Meeting to include chrysotile in Annex III of Rotterdam Convention, our International Trade Union Movement declares this to be unjust and discriminating for hundreds of thousands workers around the world. We stand for the controlled use of chrysotile in accordance with ILO Convention No.162, and non-inclusion chrysotile into Annex III of the Rotterdam Convention.

EXPERTISE AND TESTIMONY IN AMERICAN COURTS

In a series of articles published on the Internet (www.legalnewsline.com) in September 2011, Michael P. Tremoglie wrote about asbestos litigation in the United States, which is costing a fortune and has led to the bankruptcy of several large corporations, while enriching the law firms that have made it a speciality. The author interviewed four scientists who are not involved with the industry and who do not serve as expert witnesses in litigation. They were:

Michele Carbone, MD, Ph.D.,
Director of the Cancer Research Centre of Hawaii in Honolulu and American Cancer Society Research Scholar in 2004.

Joseph R. Testa, Ph.D., FACMG
(Fellow of the American College of Medical Genetics), Chair in Human Genetics and Chair of the Mesothelioma Working Group of Fox Chase Cancer Center in Philadelphia. He is the recipient of a prize for outstanding contributions in understanding the origins of mesothelioma.

Brooke T. Mossman, Ph.D.,
Director of the Environmental Pathology Program at the University of Vermont College of Medicine. She has received numerous international awards for the quality of her research.

Dr Aubrey Miller, MD, MPH
(Master of Public Health), Senior Medical Advisor at the National Institute for Environmental Health Sciences, who has also worked at the Environmental Protection Agency (EPA).

First question: Is it true that there is no general consensus that chrysotile causes mesothelioma?

According to Carbone, there is unanimity that amphibole causes mesothelioma, but there is no agreement that chrysotile causes it. According to Testa, there is much controversy regarding chrysotile, but he is not sure that it is based on strong science. Based on his reading of the literature, however, he feels there is considerable evidence from epidemiological studies that chrysotile can cause mesothelioma. Miller believes there is consensus that chrysotile causes mesothelioma.

Asked whether some scientific studies had been influenced by the litigation industry, all agreed that this had happened in certain cases. Mossman indicated that she had attended a meeting on asbestos diseases that was organized by the plaintiff bar, labour unions and asbestos removal companies. As to whether it is possible to build a case today that looks back more than 30 or 40 years, the scientists have differing opinions. This confirms that if independent researchers do not agree on the danger represented by chrysotile, we can reasonably question the supposed unanimity cited by the litigation industry.

This lack of unanimity raises the question of juries' capacity to render fair and just verdicts, particularly in cases dealing with chrysotile, whose links to mesothelioma are not the subject of unanimity in the scientific community.

The author asked two lawyers, one a plaintiff attorney and the other a defence attorney, how they address asbestos science in the courtroom. The plaintiff attorney, Benjamin Shein, stated that he goes in with the premise that all asbestos, including chrysotile, causes mesothelioma, which premise he says is supported by the EPA, NIOSH (National Institute for

EXPERTISE AND TESTIMONY IN AMERICAN COURTS - (continued)

Occupational Safety and Health), the WHO, and all international and government health organizations. In addition, in the state of Pennsylvania, the testimony of a witness or plaintiff is sufficient to determine past exposure to asbestos. He always uses the same expert witnesses.

The defence attorney, Steven Levy, stated that authorities from Canada and the United States are now able to show that the potential risk from chrysotile is not the same as for other types of asbestos. In his view, the fact that we don't know why some people develop mesothelioma while others do not is proof that the science in this area is not settled. He also emphasized that in some cases where a link was shown between mesothelioma and asbestos, there was no chrysotile.

He feels that a lot depends on how much exposure is involved, which may be more or less in each case, and on the ability to link pathology and exposure in a context where there is no scientific unanimity.

IN BRIEF

» MORE AND MORE AMERICAN COURTS ARE REJECTING THE "ANY FIBRE" THEORY IN CASES INVOLVING ASBESTOS

This theory, which is being evoked with increasing frequency in American cases involving victims of asbestos, suggests that any level of exposure, no matter how small, can cause disease (asbestosis, lung cancer or mesothelioma). Numerous independent scientific experts produced a brief to expose the methodological problems posed by this approach:

- that does not consider the level of exposure and the minimum threshold of asbestos fibres;
- that does not consider the chemical and toxicological differences between asbestos fibres;
- that does not establish a distinction between the general and specific causal link, thereby not establishing the causal link in the case of chrysotile;
- that suggests that the "any exposure" and "cumulative risk" theories are generally accepted, when this is not the case; and
- that ignores a significant number of toxicological studies demonstrating that chrysotile is not recognized as a powerful carcinogen.

» REGARDING CHRYSOTILE AND MESOTHELIOMA: NO LINK DEMONSTRATED

The link between chrysotile at present day industrial exposure level of 1 f/cc and less and mesothelioma has not been scientifically demonstrated. In fact, many scientists indicate that when properly used under controlled conditions, chrysotile asbestos in its modern day high-density applications does not present risks of any significance to public and/or worker health.

So nobody is saying there is no risk. We are only saying that at that level of exposure it has not been able to scientifically demonstrate or measure a risk despite all the media noise surrounding chrysotile, which suggests that it would be very low, to say the least.

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