

## EDITORIAL - Chrysotile : (perspectives)

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The combined efforts of producing countries and users, in collaboration with industry and workers, to favour a measured and responsible approach for the use of different types of asbestos fibres founded on objective scientific data and on the most recent technological developments have been acclaimed with great success.

These sustained efforts coordinated and implemented by many stakeholders for the past twenty years have slowed down, softened and sometimes neutralized the impact of national and international campaigns for banning the use of asbestos in the world. These efforts have resulted in regulations or legislation based on the concept of socially accepted risk regarding the necessity to satisfy the vital infrastructure needs and collective equipment especially in hygiene and public health matters.

The international chrysotile industry has really exercised a world leadership by its direct actions manifesting courage and determination against an often hostile opinion. Its outstanding work can be seen as a solid world beacon for all aspects of the safe and responsible chrysotile fibre use.

For many government authorities, producers, users and union organizations in many developing countries and emerging economies, the Chrysotile Institute (CI) is a cornerstone being a valuable source of information and consultation. It is an organization for discussions and knowledge transfers and an ally for the establishment of best practices for responsible use.

Despite the most recent scientific or medical data that show that the degree of danger of chrysotile is in fact weaker than amphiboles, the banning lobby is inflexible. Pure commercial interest is not estranged to this inflexibility.

It is also very important to observe that, currently, in practically all emerging countries, the use of chrysotile is increasing. This is particularly noticeable in the countries where chrysotile use offers with accessible economic conditions, sustainable and efficient products. This also resolves the major challenges regarding infrastructures and collective equipment designed to fill the most urgent basic needs of the population.

Except for the 25 countries of the European Union (EU) who have been obliged to ban the use of all forms of "asbestos", only a few other countries have done the same. This amounts to about 37 countries that have banned asbestos products. The great majority of countries of the world continue to and will continue to support a responsible and safe approach for chrysotile use. In fact, 2/3 of the earth's population is using chrysotile fibre.

An increasing number of scientists and regulatory authorities recognize and confirm that chrysotile is truly less dangerous than other types of asbestos fibres. More and more, concerns are raised concerning the use of many other types of industrial fibres that are presently available on the market. Studies prove that their harmlessness is seriously lacking and we encourage competent authorities of all countries to examine them quickly.

Increasingly, it is logical that all countries adopt the same control and surveillance measures for all fibre use as well as for chrysotile. Many experts hope and recommend that the same approaches and same evaluations be applied over all the industrial-use fibres.

In this context, the CI and many countries have requested from the World Health Organization (WHO) or the International Agency for Research on Cancer (IARC) that comparative risk evaluations

be performed between chrysotile and other fibres. Unfortunately, we are still waiting for these evaluations. The absence of these evaluations is less and less acceptable for many countries.

For the CI, the pertinent debate is the pursuit and improvement of health protection, but also and above all, the improvement of living conditions and hygiene of populations with serious problems of poverty and misery. Chrysotile fibre is an intelligent answer to all these objectives and it is in agreement with the principles of sustainable development for emerging and developing countries.

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## SUCCESSFUL SCIENTIFIC SYMPOSIUMS IN ASIA

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Too often in emerging countries, lack of financial resources to undertake essential research is unfortunately drastically real. There are insufficient funds to explore and review data and new information provided on research and published studies regarding the potential risks of industrial substances.

In these countries, there exists great concern about perceived and real health risks and environmental contamination which may result if a wrong approach is adopted or if workers are not adequately trained and good work practices not implemented.

CI is aware of the virulent media campaign against asbestos and has often pointed out that there exists the heritage left over from improper use of amphibole asbestos fibres in the past. Furthermore, there is great pressure from some industries in countries producing other industrial fibres, even though an increasing number of scientists are stating their concerns about the possible harmful health effects of these replacement fibres. With the good results of the chrysotile biopersistence studies, the burden of proof should now rest with the other industrial fibres found on the market today.

For many years use of amphiboles, such as crocidolite and amosite, was most common. Many countries manufactured calcium silicate insulation boards, fibre cement pipes and asbestos textile products. And, many people, in particular workers in the manufacturing facilities, were exposed to these amphiboles. Regretfully today are suffering the results of those past exposures.

Responding to a request from the host countries, Indonesia and Thailand, ICA and CI in collaboration with many national associations, accepted to help organize and participate in a solid, scientific symposium. The objective here was to present factual information, up-dated and new studies and perspectives based on current research and technology on chrysotile fibres and chrysotile containing products.

The scientific symposiums, held at the beginning of March 2006, enjoyed the participation of more than 200 persons (participants came from various fields of expertise: government authorities, scientists, academicians and industrialists, workers and management) and provided an accurate picture of what is scientifically known today on chrysotile as the proven difference between chrysotile fibres and amphiboles. The biopersistence of fibres was addressed, as well as very detailed and rigorous research presented and results obtained from exposure studies of workers who handled friction materials or chrysotile-cement products over the years.

It was also deemed that this was an appropriate occasion to put into perspective the biased opinions promulgated by the people pushing for a global ban of all types of asbestos, including chrysotile.

Based on information obtained from many studies, it is recommended that countries should be concerned about replacement fibres, mainly because of the lack of serious research and data on these substitute fibres. Before going that route, the competent decisional governmental authorities are well advised to request appropriate scientific studies and data showing that they are safer or less harmful to people than chrysotile.

It was demonstrated by many scientists present, proof in hand, that chrysotile can be used safely and responsibly. The results of studies were presented by teams of leading international specialists. According to the result of numerous studies, chrysotile fibres are far less hazardous than amphibole fibres, whose wide-spread use in the past has caused serious health problems when workers were exposed to them.

The focus of the biopersistence of chrysotile was a key parameter in determining the specific hazards associated with a fibre and to compare different fibres with respect to this variable. Biopersistence was presented as the measurement of the rate at which fibres are eliminated from the lungs. In 2001, it was confirmed as a crucial parameter by a taskforce of 19 experts from 11 countries, reporting to the International Agency for Research on Cancer (IARC)-

WHO) and incorporated by the European Union into its evaluation protocol.

What was reconfirmed at the symposiums by the epidemiological studies – chrysotile fibres are less hazardous to health than amphibole fibres. The recent studies on biopersistence not only validate these results, but also provide powerful support for this conclusion. The biopersistence of chrysotile compares favourably with other fibres, such as certain celluloses – whose biopersistence has been evaluated at 1,000 days, aramid fibres at 90 days, refractory ceramic fibres at 60 days, and chrysotile between 3 to 16 days.

Recent quantitative and solid reviews of the analysis of data and recent epidemiological studies were presented. The weight of evidence strongly suggests that low exposure to pure chrysotile is probably not hazardous. It also suggests that the hazard may be low if even high exposures were of short duration. All these robust scientific data put in real perspective that it is now a matter of control, exposure and dose.

Taken in context with the scientific literature available to date, these data provide the world with results that clearly support the difference, epidemiologically, between chrysotile and amphibole asbestos fibres. And, also confirms that the right approach is the implementation of the safe and responsible-use of chrysotile worldwide, as is the case today.

CI reiterates at these occasions, concern regarding the fact that too often the word “asbestos” is used indiscriminately without precise specification and clarification of the term. Asbestos does not describe the product and this has resulted in incomplete and misinformation. The general public is ill-served when provided with incorrect or misleading information. All concerned, including the media, should address this unfortunate situation on a priority basis.

## **ROTTERDAM CONVENTION**

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NO to the inclusion of chrysotile in the Prior Informed Consent (PIC) list of the Rotterdam Convention

Numerous chrysotile using and producing countries expressed their opposition to the proposal, brought forward by Europe and Chile at the COP 1 meetings in Geneva, September 18, 2004, to include chrysotile in the PIC list of the Rotterdam Convention. Despite this opposition from a great number of countries, the proposal is once again on the floor for the COP III meetings which will be held in October 2006.

There is no doubt that all anti-asbestos supporters are counting on the inclusion of chrysotile to the PIC list in order to accelerate their crusade for a worldwide ban, even though they refuse to officially admit that this is their ultimate goal.

It is deplorable that the adversaries of our position, which is the safe and responsible use of chrysotile, use health issues and the quality of the environment, both of which are very sensitive public opinion subjects. This inevitably leads to exaggeration and denigration, which in turn shapes the perception of a population who doesn't now how to apply the appropriate nuances or unbiased analysis in order to differentiate between propaganda and truth. It is evident that major commercial interests are implicated and it is regrettable that a commercial war is being fought under the cover of an environmental issue.

The controlled and responsible-use policy is supported and based on solid scientific and recent, pertinent and powerful research studies. This is, unfortunately, not the case of the allegations based on historical anecdotes of a past era and on working conditions and work practices which were eliminated many years ago, and are used to present the darkest scenario of the current situation.

The Chrysotile Institute (CI) and the International Chrysotile Association (ICA) have worked for years to disseminate information and data contained in studies



which demonstrate the low risk of using chrysotile. When properly controlled, it is possible to work intelligently with this substance without endangering the health of workers. CI and ICA have been relentless, putting much effort in the promotion of the safe and responsible use policy of chrysotile around the world. The inclusion in the PIC list will be grossly unfair to all interveners in the chrysotile file promoting health and safety, and also very contemptuous towards heads of states of emerging countries.

CI believes that countries have the right to stop using any product or fibre, as this choice is based on their own political and economical considerations, and we believe that their choice should not be exposed to denigration or harassment. On the other hand, many countries have agreed that chrysotile, under today's conditions and supported by safe work practices and the responsible-use policy, can be used safely. These numerous countries also have the right to expect that their choice is respected, in the same manner as those countries that have decided otherwise. Undue pressure, denigration and harassment must be denounced and desist.

**Three major issues should be addressed immediately by the competent authority of the Rotterdam Convention:**

In order to include a product or a substance on the PIC list, it is imperative that the requesting countries follow strictly the entire procedure adopted by all countries. All requests must be supported by rigorous and specific analysis on the risk assessment of the product targeted. For example, in the notification received from Australia and Chile, they raised the issue of mixed-fibres exposures (crocidolite and chrysotile). Such an approach must be rejected for the simple reason that arguments are not based on the product or the substance. Each requesting country must present its own documentation specifically restricted to addressing the product or substance in question.

When a recommendation is submitted to the COP for discussion and adoption and the proposal is not accepted by consensus, as was the case in September 2004, such a decision must be accepted and respected by all participating countries and by the competent

body of authority of the Rotterdam Convention. The same subject should not be brought up again for a period of at least five years, unless new robust and solid evidence justifies a review prior to the five-year limit.

Actually, participating countries received the documentation and information on products and substances submitted for inclusion on the PIC list only a few weeks prior to the CRC sessions. This is unacceptable. A period of not less than three months should be allowed and respected, with participants receiving all necessary documents and risk assessment studies well in advance.

CI urges all participating countries to make sure that their respective governments request that the Rotterdam Convention competent authorities implement the necessary amendments and correct the evident inadequacies.

**THE ANSWER IS NO**

Finally, CI is also urging all participating countries to say NO to the inclusion of chrysotile fibre on the Rotterdam Convention's PIC list.

At the COP II meeting which will be held in October 2006, all countries must express their strong opposition to such an unreasonable proposal. There are no new scientific or medical data published since 2004 justifying a change in the position taken at the COP I meetings in 2004. Therefore, let's reject this proposal once and for all.

# International CONFERENCE on Chrysotile

Mai 23-24, 2006 in Montreal, PQ., Canada

## **Chrysotile** at a Turning Point Results and Scientific Perspectives

Organized jointly by the Chrysotile Institute and the International Chrysotile Association, the Montreal International Conference will allow to:

- Get an update on recent chrysotile studies;
- Learn about new unpublished data;
- Shed new light on the situation of different chrysotile-producing and chrysotile-using countries.

Over a dozen speakers from Russia, U.S.A., Canada, India, Europe and Latin America will present the results of their research or provide an overview of the situation in their countries.

The Conference will be chaired by Jacques Dunnigan, Ph.D., Toxicologist.

The Montreal International Conference is intended for researchers, producers, users, industry leaders, government agencies, as well as unions and labour representatives.

### **Deep impact**

Europe banned asbestos in 1999. This decision was based on the available data at that time. However, over the last six years a number of scientific studies published, and still ongoing, are providing solid proof that major health hazard difference exist between chrysotile and amphiboles. These studies also present interesting data on the level of risk and distinctions of exposure duration. It is imperative that this recent information be known and widely circulated to an international audience.

The last few years have brought major scientific advances. Regarding biopersistence of fibres, new data (2003) have confirmed identifiable epidemiological differences between chrysotile and amphiboles. Studies published on American, Brazilian and Canadian chrysotile have strengthened and confirmed the results by McDonald and McDonald (1997 study) asserting that amphiboles remain in the lungs while chrysotile is quickly eliminated. Additionally, a complete case review on the subject of asbestos presence in the brakes and friction materials industry (2004) reveals that it is workers exposed to amphiboles who have developed asbestos-related diseases – and not workers exposed to pure chrysotile.

With today's industrial techniques and work practices, the use of chrysotile in high density products does not represent any significant risk to human health. This fibre provides significant societal benefits to emerging countries, particularly as to sanitary infrastructure construction and housing.

## Preliminary Agenda

### Day 1 – AM

07:30 – 08:30 Registration  
 08h30 – 09:00 Welcome Address  
 By Jacques Dunnigan, Ph.D, Chairperson of the conference Government Dignitaries

#### \* FIRST SESSION

09:00 – 09:30 The health effects of chrysotile: current perspective based upon recent data  
 David Bernstein, Ph.D., Toxicologist, Switzerland

09:30 – 10:00 Review of the evidence published after 2000 up to the present  
 Suresh H. Moolgavkar, Ph.D., Professor, Epidemiology, USA

10:00 – 10:30 EPA's 1986 risk assessment model in light of epidemiological evidence: a reality check  
 Michel Camus, Ph.D., Ministry of Health, Canada

10:30 – 10:45 Question and Answers

10:45 – 11:15 Pause

11:15 – 11:45 Changing trends in mesothelioma incidence  
 Hans Weill, M.D., Tulane University School of Medicine, USA

11:45 – 12:15 Mesothelioma and chrysotile in Russia  
 Sergey V. Kashansky, M.D., Ekateringburg Medical Research Center, Russia

12:15 – 12:30 Questions and Answers

12:30 – 14:00 Lunch

### Day 1 – PM

#### \* SECOND SESSION

14:00 – 14:30 Current use and health significance of the modern use of chrysotile products: review of recently published evidence  
 John Hoskins, Ph.D., Independent Toxicologist, U.K.

14:30 – 15:00 Chrysotile: Russian experience in occupational health  
 Nikolai F. Izmerov, M.D., Head, Russian Occupational Health Institute

15:00 – 15:30 Perception and facts: chrysotile in Latin America  
 Luis Cejudo Alva, Arch., Consultant to the Instituto Mexicano de Fibro-Industrias, A.C., Mexico

15:30 – 16:00 India: The safe use approach of chrysotile  
 Vivek Chandra Rao, M.D., Hyderabad Industries, India

16:00 – 16:15 Questions and answers

16:15 – 16:45 Pause

16:45 – 17:15 Chrysotile: Still alive in the U.S.A  
 Bob J. Pigg, President, AIA/NA, USA.

17:15 – 17:45 Asbestos: The great deception  
 John Bridle, Professor, Asbestos Watchdog, U.K.

17:45 – 18:00 Questions and answers

19:00 Cocktail and dinner

### Day 2 – AM

#### \* THIRD SESSION

09:00 – 09:30 Chrysotile-cement handling and fibre emissions  
 Denis Hamel, M. ATDR, HEC Montreal, Consultant, Canada.

09:30 – 10:00 The role of dose reconstruction and simulation studies in understanding historical exposure to asbestos  
 Dennis Paustenbach, Ph.D., DABT, Toxicologist, ChemRisk, USA.

10:00 – 10:30 Government-Industry Agreement: Concerted plans for the safe use of chrysotile in Mexico  
 Sra Rocio Alatorre Eden-Wynter, Biologist, Ministry of Health, COFEPRIS, Mexico.

10:30 – 11:00 Risk assessment and health effects of asbestos exposure  
 Ericson Bagatin, M.D., Ph.D., Occupational Health Department, State University of Campinas, Brazil

11:00 – 11:15 Questions and answers

11:15 – 11:45 Pause

#### \* FOURTH SESSION

Chairperson: Clément Godbout

11:45 – 12:15 The Canadian policy on chrysotile  
 Gary Nash, Deputy Minister Minerals and Metals Sector Natural Resources Canada

12:15 Closure  
 Clément Godbout  
 President, Chrysotile Institute

## **INTERNATIONAL BAN ASBESTOS SECRETARIAT**

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### **Ban Who are they?**

International Ban Asbestos Secretariat (IBAS) claim to be a non-profit, volunteer-run organization of asbestos victims and their families, so-called scientists or academics and classifies themselves as activists and concerned citizens dedicated to ban all types of asbestos fibres world-wide.

This organization is on a crusade. Its mission is clearly established. Through their anti-asbestos campaign, IBAS is unfortunately demonstrating a very bad comprehension of the living conditions in poor countries. Too often, IBAS has proven to be insensitive to the cruel realities of these populations.

IBAS' target is a global ban of asbestos – including chrysotile.

This very limited group of persons is working in close cooperation with some European activists, who are generally members of a committee called “working group for a sustainable development”. It is quite interesting that certain individuals working for the International Labour Office (ILO) (Safety, Health and Environment) are also close to the committee.

IBAS has a very close relationship with Jerome Consultants (JC), an independent organization specializing in the field of asbestos and tobacco research. Jerome Consultants finances the production and distribution of the British Asbestos Newsletter. On its website, they state: “Our ability to obtain information and contact key personnel has been greatly enhanced by access to the international asbestos network ...”

IBAS is implicitly supporting the substitution of all asbestos fibres, including chrysotile, even if many of these replacement fibres have not been proven safer or less harmful for people than chrysotile fibres.

IBAS is keeping very busy either organizing or participating in many conferences around the world, where the same speakers repeat their rhetoric seeking a worldwide ban of asbestos including chrysotile fibre.

### **THE QUESTION IS:**

**Who pays for all of these events and whose best interests does the International Ban Asbestos Secretariat really serve?**

## **CASITILE : THE NEW ASBESTOS**

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Let's read what Professor John Bridle from UK Asbestos Watchdog and Sophie Stone, MSc, BSc (Hons) have written about this “new” form of asbestos.

“The most fundamental mistake made by the authorities has been to transpose the hazards posed by raw fibres onto the products made from them. It is scientifically nonsensical to attribute the health risk posed by a raw material to products made from it. If this approach were taken to every potentially hazardous material, no product would be left unregulated (nickel, for instance, is officially classified, like asbestos, as a Class One carcinogen, yet it is used to make Euro coins).

“Among issues studied by the research on fibre release has been the question of whether the properties of chrysotile fibres undergo chemical change when they are used in asbestos containing materials (ACM). Where chrysotile is used in asbestos brake linings, for instance, it has been shown that heating the material (as occurs where the brakes are used) causes the chrysotile fibres to alter their chemistry and structure, transforming them into a different mineral: an olivine known as Forsterite (Mg<sub>2</sub> Si<sub>2</sub> O<sub>4</sub>).

“Until recently less well documented, however, has been the question of whether a similar process occurs when chrysotile is added to cement. In light of the abundance of asbestos cement, by far the commonest use of asbestos in the built environment, this question becomes one of the greatest importance.”

After analyses signed over the last 25 years by different scientists from around the world, it is now known that chrysotile fibres, when mixed with cement, changes. When added into a cement mix in the manufacture of asbestos containing products,



the supposedly “pure” chrysotile actually displays additional calcium that does not appear with raw chrysotile. The surface characteristics, composition and crystal structure of chrysotile change. These chemical changes lead to a marked decrease in the biological activity of chrysotile fibres.

L. Elovskaya wrote in 1992 (Modification of chrysotile asbestos under the influence of environment and cement hydration products in asbestos cement): “Therefore any risk posed by asbestos cement becomes significantly less.”

For these reasons, Bridle and Stone suggest: “Lastly, but ironically perhaps most importantly, there is the matter of a small name change. The findings of the papers in this review support the view that chrysotile fibres have been so altered, chemically and structurally, that it is no longer scientifically justifiable that they should continue to be defined as chrysotile. Since a new term is required to classify their altered state, one suggestion, in light of their chemical adsorption of Calcium (Ca) and Silicon (Si), is that they should be called ‘Casitile.’”

## **Breaking News People are waking up and finally smelling the coffee**

### **\* Environment Agency shows its asbestos ignorance. United Kingdom**

A recent case in Ludlow, Shropshire, has again highlighted the extraordinary hysteria over asbestos. When in 2004 workmen, for the Severn Trent water company, dug up a few white asbestos cement pipes nearby, they carefully wrapped them in plastic and took them to their Ludlow depot for disposal. Officials of the Environment Agency went ballistic.

Did the company not know that, since their depot was not a “licensed waste transfer station”, this was a serious breach of EC waste law? As for the asbestos itself, was this not deadly stuff, one fibre of which could kill? These were serious criminal offences, which should be punished with fines of thousands of pounds.

Fortunately, Severn Trent’s solicitor had the wisdom to consult Professor John Bridle of Asbestos Watchdog [...]. On the wider issue, the agency’s barrister waxed rhetorical about the deadly dangers of asbestos. But the court then heard Severn Trent’s solicitor explain that white asbestos cement poses no danger, since it is not possible for its fibres to escape. A sensible magistrate found in Severn Trent’s favour.

The shock of this tale is that the Environment Agency’s officials should be so babyishly ignorant about the nature of asbestos. This is serious, since the U.K., as a nation, is now paying out millions of £ a year to bury, as “hazardous waste”, 360,000 tons of harmless asbestos cement.

Source: Sunday Telegraph, 5 February, 2006. “Environment Agency shows its asbestos ignorance”

### \* Beware the B-Readers. A summary

Of all the unsavoury details rolling out of investigations into the silicosis and asbestos scams, some of the ugliest, concern doctors, who abandoned their ethics to cash in. Even more disturbing is the growing evidence that what has allowed them to get away with this is a federal certification program.

That's why a coalition of industry and other groups has begun pushing the National Institute for Occupational Safety and Health (NIOSH) to start policing its "B-Readers" program, which certifies doctors to read X-rays. The federal agency proposed new ethics rules in November 2005, after a federal judge slammed several government-certified doctors who had ginned up sham diagnoses in a litigation mess. But NIOSH will probably have to go further to clean up this corrupt system.

NIOSH's B-reader program started in the 1970s, as the government tracked coal workers with black lung disease. NIOSH was concerned about the competence of doctors reading chest X-rays, so it began a training course and test. Those who pass become known as "B-readers."

Their (B-readers) standing is so high that litigators often forward their work as proof of a diagnosis, even though the medical world universally agrees that X-rays alone never prove a serious illness. In short, a program designed to raise standards has been hijacked for the opposite purpose.

One famous example involved a tort bar scheme called the National Tire Workers Litigation Project, which sent doctors around the country in mobile X-ray vans to screen rubber workers for asbestosis. Information distributed to tire workers stated that 64% of those screened at one location had shown positive for asbestosis and 94% at a second location. Yet when NIOSH had an independent panel evaluate X-rays of tire workers most at risk for the disease, it found asbestosis in 0.2%.

These doctors should have been stopped long ago by state medical boards, which are supposed to enforce medical standards. These broads have come in for a lot of deserved criticism of late due to their reluctance to intervene.

Source: Wall Street Journal, 23 January, 2006, United States "Beware the B-Readers"

### \* Abstract of a Fatal Crack

Thanks to a scientific blunder, the law has confused two types of asbestos (blue and brown) which cause serious damage to human health, with the much more common products containing "white asbestos", a wholly different mineral posing no unacceptable risk for health.

One such product, found in millions of homes, is Artex, a textured plaster applied to walls and ceilings, containing amounts of white asbestos so small that they are no danger to anyone. When the HSE (Health and Safety Executive) drew up its 2002 Control of Asbestos at Work Regulations, Artex was included as a high-risk material, only to be handled by HSE-licensed contractors, such as members of ARCA.

It was admitted that the inclusion of Artex in the regulations provides a third of the contractor' income: hundreds of millions of pounds a year, paid by householders, businesses, housing associations and local councils, for work which in many cases is not necessary or which could be carried out by ordinary builders for a fraction of the cost.

The expert, who has done more than anyone to expose this absurdity, is John Bridle. The value of his work is very often recognized

If the new law supported by Prof. John Bridle comes into effect as planned, this will represent a victory for common sense for which the HSE will deserve the nation's thanks.

Source: Sunday Telegraph, United Kingdom, 11 December, 2005, "Fatal cracks appear in asbestos scam as HSE shifts its ground"

## \* Chrysotile in Gaskets, United States

*An Exposure Study of Bystanders and Workers During the Installation and Removal of Asbestos Gaskets and Packing:*

### **Abstract:**

From 1982 until 1991, a series of studies were performed to evaluate the airborne concentration of chrysotile asbestos associated with replacing gaskets and packing materials. These studies were conducted by the senior author in response to concerns raised by a report from the Navy in 1978 on asbestos exposures associated with gasket work. A series of studies were conducted because results of those who worked with gaskets within the Navy study did not address the background concentrations of asbestos in the work areas, which may have been significant due to the presence of asbestos insulation in ships and shipyards.

The intent of the studies performed from 1982 through 1991 was to re-create the Navy's work practices in a contaminant-free environment during an 8-hour workday (so the data could be compared with the OSHA permissible exposure limit (PEL)). Samples were collected to characterize personal and area airborne asbestos concentrations associated with the formation, removal, and storage of gaskets, as well as the scraping of flanges and the replacement of valve packing.

The results indicate that the 8-hour time-weighted average (TWA) exposures of pipefitters and other tradesmen who performed these activities were below the current PEL and all previous PELs. Specifically, the highest average 8-hour TWA concentration measured for workers manipulating asbestos gaskets during this study was 0.030f/cc (during gasket removal and flange face scraping onboard a naval ship). Likewise, the 8-hour TWA breathing zone concentrations of a worker removing and replacing asbestos valve packing did not exceed 0.016f/cc. In most cases, the concentrations were not distinguishable from ambient levels of asbestos in the ships or the general environment.

These results are not surprising given that asbestos fibers in gasket materials are encapsulated within a binder.

Source: Journal of Occupational and Environmental Hygiene, Vol. 3, Number 2, February 2006

*"An Exposure Study of Bystanders and Workers During the Installation and Removal of Asbestos Gaskets and Packing."* Authors: Carl Mangold, Katherine Clark, Amy Madl and Dennis Paustenbach. Environmental Control Sciences Inc., Bellevue, Washington; and, ChemRisk Inc., San Francisco, California.

## **EMISSIONS OF BREATHABLE FIBRES NEW STUDY TO BE PUBLISHED SOON**

The primary objective of this study was to evaluate the emission levels of airborne fibres and to compare products when being cut. The products studied were different kinds of fibrocement and friction products. The tools used for the tests were exactly the same being used today in construction, repair, renovation or demolition.

The second objective of the study was to compare chrysotile-based products and their substitutes in order to determine which were most likely to produce or release breathable fibres.

Some 107 cut analyses were made. Cut techniques and analysis respected a rigorous protocol that conformed to international norms and standards. Here are the preliminary conclusions of the study:

1. The use of manual tools, under any circumstances and regardless of the fibre types used, will not release breathable fibres that are over the acceptable limit. These tools, recommended by manufacturers and labour organizations respecting the "controlled-use" policy are the most appropriate for all kinds of fibres-based materials; and,

2. As is well-known, the use of water to reduce breathable fibres emissions is very efficient even when using electrical tools. In comparison with the same product cut with the same tool, with water, dust contamination is reduced by 50 to 90%.

Again, this confirms that it is possible to provide workers with safe working conditions when manipulating fibrocement products. With the basic safety measures in place, these products do not release breathable fibres above the permitted exposure level (PEL).

These are the preliminary information at this time. Once the report is complete, the Chrysotile Institute will publish and distribute the complete report.

