

# **SAFE AND RESPONSIBLE USE OF CHRYSOTILE ASBESTOS FROM POLICY AND LEGISLATIVE FRAMEWORK OF THAILAND**

## **I. CHRYSOTILE MANAGEMENT AND CONTROL AGENCIES**

### **Governmental agencies**

Three governmental agencies with their important role in the asbestos control, including:<sup>1</sup>

- Department of Industrial Works, Ministry of Industry who issues regulations and controls the import, use and storage of asbestos;
- Bureau of Occupational and Environmental Diseases, Ministry of Public Health takes its responsibility to give instructions on safety, health and service to control the asbestos-related diseases;
- Ministry of Labor regulates the standards for maximum exposure limit at the asbestos workplaces to protect the health of employees.

Other agencies:

- National Environment Act, Ministry of Science and Technology, established under the Enhancement and Conservation of National Environment Quality Act 1994 develops relations with the partners, financial sources, standards, planning, reserved areas, environmental limitation, environmental impact assessment, pollution prevention and control, encouraging measures and punishments.
- Secretariat of the Cabinet: Notification No. 9 in 2010 by Consumer Protection Committee on labeling asbestos-containing products,<sup>2</sup> therefore, despite no asbestos mines available in Thailand, the trading and manufacturing of this product is also interested by the Thailand's Government.

### **Non-governmental organizations**

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<sup>1</sup> Dr. Somkiat Siriruttanapruk, Strategy and implementation of the programme for the prevention and control of pneumoconiosis in Thailand, EPTS-2013-[SAFEW-130701-1]-En.docx, p.6

<sup>2</sup> Pitchaya Phakthongsuk, *Primary, Secondary and Tertiary prevention of Asbestos-related disease*, 2011, at [http://www.envocc.org/html/modules.php?name=Downloads&d\\_op=getit&lid=156](http://www.envocc.org/html/modules.php?name=Downloads&d_op=getit&lid=156), p.87

In the past, public supervision over the chrysotile was mainly conducted by the scientists and the competent authorities. Since 2009, the Consumer Fund has been established and involved by over 100 non-governmental organisations in Thailand to prepare campaign for ban of chrysotile nationwide.

## **II. POLICY FRAMEWORK**

Thailand is one of the top asbestos importing countries (the 5<sup>th</sup> importer of asbestos in the world).<sup>3</sup> The diseases relevant to the asbestos are among the eight occupational diseases covered by an active health surveillance scheme run by the Bureau of Occupational and Environmental Diseases. However, most of the scheme's work has been focused on silicosis and lead poisoning because of a larger target population; and very little information about asbestos-related diseases is available from the scheme. Up to now, few cases of asbestos-related diseases have been reported to the national surveillance schemes:

- (1) The survey carried out in 24 factories in 1987 showed that 13 out of 701 workers had Pleural thickening, unfortunately, they received no further follow-up as health officers had other urgent occupational health problems to focus on at that time;
- (2) Two further studies conducted later revealed no cases of asbestos-related diseases despite high exposure levels;
- (3) Recently, four cases of asbestos-related malignant mesothelioma and nine cases of asbestosis were diagnosed and reported, however, they have not been reported to the country's Workmen's

Compensation Fund: Although only a few cases of asbestos-related diseases have been detected or reported in the country, the prevention and control of the diseases are very important. Since asbestos has been widely used in Thailand for a long time, the number of cases is definitely expected to be high in the near future; consequently, there are various actions/initiatives against the use of asbestos in Thailand, namely:

Bangkok Declaration in 2006 containing expectations and commitments of the Asian Region declared to eliminate the asbestos and the asbestos-related diseases. Since then, the ban-asbestos movements have officially commenced in Thailand.

In 2007, the National workshop on asbestos in Thailand held by the Occupational Safety, Health and Environment Committee set the final objective - ban the asbestos in 2012.

The National Strategic Plan and Actions for prevention and control of the asbestos-related diseases (ARDs) in Thailand organized by the Ministry of Health under the assistance of WHO

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<sup>3</sup> Most of asbestos is imported by Thailand from Russia, Brazil and Canada. See Dr. Somkiat Siriruttanapruk, Strategy and implementation of the programme for the prevention and control of pneumoconiosis in Thailand, EPTS-2013-[SAFEW-130701-1]-En.docx, p.61, p.6

and ILO were given in 2007. One notable achievement of national policy implementation was the enactment of legislation requiring the labeling of warning signs on asbestos-containing products as ordered by the Consumer Protection Board in 2009. In addition, in order to reduce asbestos use and to promote the use of substitutes, the development/issuance of other policies using taxation strategies was proposed. However, this proposed policy was not feasible because of the free trade agreement on certain chemicals, including asbestos, in force between Thailand and other countries.

In 2008, the Ministry of Health coordinated with the Occupational Medicine Association of Thailand, the Occupational Health and Safety at work Association, the Occupational Health Nursing Association and Health Consumer Protection Program to mobilize for an order of ban-asbestos.

In 2010, the National Economic and Social Advisory Council - NEAC submitted a proposal for ban of asbestos to the Prime Minister and the National Health Assembly – NHA also approved a resolution on the ban of asbestos.

In 2011, the Resolution of NHA was submitted to the Government Cabinet for implementation. However, the Resolution by the Cabinet on ban of asbestos has not been decided. There are many reasons for the delays in the banning process, including the fact that all relevant government agencies do not agree on the health effects arising from exposures to asbestos. Some government agencies, such as the Ministry of Industry, disagree with the policy to ban asbestos, and the Ministry of Public Health is not the main authority responsible for legalizing the ban on asbestos. One of the main reasons for the disagreement among the various agencies is that there are not sufficient data and reports on the hazard of asbestos for the human health because of the long latency period of the diseases, the high turnover rates of workers and lack of awareness of the diseases among physicians and ineffective systems for the follow-up of exposed workers.<sup>4</sup> On top of that, the continuous interruption of the process by pro-asbestos agencies (both international and local) is a major obstacle.<sup>5</sup>

Recently, the Cabinet of Thailand Government rejected a Public Health Ministry proposal on the asbestos ban, saying that there are not enough evidences of the asbestos-related diseases in Thailand.<sup>21</sup> This rejection by the Cabinet also means the rejection of proposal by Ministry of Industry on the ban of asbestos-containing products in 2020.

### **III. LEGISLATION FRAMEWORK ON CHRYSOTILE ASBESTOS IN CERTAIN FIELDS**

#### **Import and Export**

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<sup>4</sup> See Dr. Somkiat Siriruttanapruk, Strategy and implementation of the programme for the prevention and control of pneumoconiosis in Thailand, EPTS-2013-[SAFEW-130701-1]-En.docx, p.7

<sup>5</sup> As above-mention.

The hazardous substances, including asbestos are mainly amended in Hazardous Substance Act, B.E. 2535 in 1992<sup>6</sup>. Under which, the asbestos is divided into two categories:

- Chrysotile is included in the hazardous substance Category 3 – subject to strict control, which its production, import or export or possession shall be licensed and registered with a certificate.<sup>7</sup>
- The crocidolite and amosite are the hazardous substances Category 4, which its production, import or export or to have it in possession is prohibited.<sup>8</sup> The asbestos is a hazardous substance managed by the Ministry of Industry, therefore, Application for permission to import, export or have in possession this substance must be submitted to the Ministry in question. The Ministry of Industry will review the following criteria in issuing permits for production, import, export and possession of asbestos.<sup>9</sup>
- Permission of asbestos production: The competent official shall inspect the site of the production facility, storage facility, machinery and the accuracy of documents, and prepare an inspection report within 30 days. Based on the inspection report, the Ministry of Industry will response to the issue of license or refusal of issue within 20 days.
- Permission to import, export or have in possession asbestos: the competent official shall inspect the site of the storage facility and the accuracy of documents, and prepare an inspection report within 10 days. Based on the inspection report, the Ministry of Industry will response to the issue of license or refusal of issue within 10 days.

However, the duty has not ended until a license is received. Those who have received the license of asbestos import, export or possession must ensure the safe equipment in accordance with the general regulations on the hazardous substances specified in the Hazardous Substance Act.

### **Transport and Storage**

Location of storage facility: A storage facility of hazardous substances must be located in a suitable setting and must facilitate its safe transportation of the hazardous substances. The facility shall not cause nuisance, pollution or any adverse effects on rivers, canals, water reservoirs or natural and environmental conservation sites. In this regard, the quantity,

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<sup>6</sup> [Seehttp://www.jetro.go.jp/thailand/e\\_survey/hazardousact.html](http://www.jetro.go.jp/thailand/e_survey/hazardousact.html), accessed on 5 Sept 2015

<sup>7</sup> Clause 18 Chapter 2 The Hazardous Substances Control Act 1992; Annex 5.1 Inventory of Hazardous Substances controlled by Ministry of Industry under the Notification of Ministry of Industry on the Inventory of hazardous substances, B.E. 2556

<sup>8</sup> As above-mentioned

<sup>9</sup> Clause 3 Chapter II Regulations of Ministry of Industry, B.E. 2537 (1994) issued pursuant to the Hazardous Substances Control Act, B.E. 2535 (1992)

characteristic, properties of the hazardous substance and the safety of its containers must also be taken into consideration.<sup>10</sup>

Technical specifications for warehouse: Asbestos warehouse must have additional specification as follows<sup>11</sup>:

- (1) Not causing a nuisance, danger or any damage to persons, animals, plants, properties or the environment;
- (2) Having a specific storage area according to the characteristics of the asbestos with a size and condition suitable for the type and quantity of the asbestos pending permission as well as a sufficient area for the loading and unloading of the asbestos;
- (3) A building of 30 meters or more in length and width must install fireproof partition for at least every 30 meters to prevent the spread of fire. These provisions shall not apply to the possession of asbestos for use in hire services, for the retail of asbestos in the form of finished products directly to consumers or for personal uses.

In the storage of an asbestos in an open area, a preventative measure against spills or leaks suitable for the properties of the hazardous substance and the size of its operation must be implemented, and there must be controls of the hazardous substance to prevent spillage or leakage to external areas in case of an accident.<sup>12</sup>

Duty and responsibility of entrepreneur: According to the Notification of Ministry of Industry on Designation of a Specialized Person Responsible for Safety of Hazardous Substance Storage under Authorization of Department of Industrial Works at the Hazardous Substance Business Facility, the following asbestos entrepreneurs must designate one specialized responsible person at the asbestos storage facilities:<sup>13</sup>

- (1) Producer, importer or exporter of asbestos in total amount from 1,000 metric ton/year.
- (2) Asbestos entrepreneur must designate one specialized responsible person at the asbestos storage facilities and send the notice of this designation in accordance with the provisions of Department of Industrial Works.<sup>14</sup> This specialized person shall not work at other

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<sup>10</sup> Clause 9 Chapter II Regulations of Ministry of Industry B.E. 2537 (1994) Issued pursuant to the Hazardous Substance Act B.E.2535 (1992)

<sup>11</sup> Clause 10, Chapter II, Regulations of Ministry of Industry B.E. 2537 (1994)

<sup>12</sup> Clause 11 Chapter II Regulations of Ministry of Industry B.E. 2537 (1994)

<sup>13</sup> Clause 4 Notification of Ministry of Industry on Designation of a Specialized Person Responsible for Safety of Hazardous Substance Storage under Authorization of Department of Industrial Works at the Hazardous Substance Business Facility B.E. 2551 (2008).

<sup>14</sup> Clause 4 Notification of Ministry of Industry, B.E. 2551 in 2008.

asbestos business facility<sup>15</sup> and have the following duties and responsibilities: Operate the asbestos storage facility to be safe in accordance with the law regulations; Prepare the annual safety plan of asbestos storage and keep it at the storage facility for an investigation of the official at any time; Prepare and certify a report of safety storage of asbestos to the Department of Industrial Works via computer system; Provide true and correct information to Department of Industrial Works in case of an accident at the asbestos storage facility.

In case that a specialized person no longer desires to work in this duty or has no longer been assigned by the asbestos entrepreneur to be responsible for asbestos storage, as the case may be, he/she shall send a written notice to Department of Industrial Works at least 15 days in prior to the effective date. Registration of a specialized person shall comply with criteria and method prescribed by Department of Industrial Works.

The recipient of a permit for production, import, export or possession of hazardous substance, who is also a carrier of the hazardous substance, must provide the following:<sup>16</sup>

- (1) Requirements of transport vehicle: an appropriate vehicle for safe transport of the asbestos. In the case where the asbestos is transported with other materials, it must be separately packed to prevent any spill or leak if the containers are broken or damaged. In the case where the container of hazardous substance is fixed to the vehicle, if it is a vehicle under the law on land transport, it must be inspected by the Department of Land Transport; if it is a vessel under the law on marine navigation in Thai territorial waters, it must be inspected by the Harbour Department.
- (2) A symbol or mark indicating the properties of the transported hazardous substance, including the word “hazardous substance” in clearly red on both sides of the vehicle.
- (3) Labor protection equipment: personal protection equipment (PPE) as suitable for the driver and necessary equipment for preventing an anticipated accident resulting from spills or leaks of asbestos.
- (4) Material Safety Data Sheet - MSDS of asbestos available for production to an authority or the competent authority while transporting more than 1,000 kilogram;
- (5) Driver shall have knowledge on the asbestos being transported by having undergone a training program on prevention and stoppage of dangers from asbestos;

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<sup>15</sup> Clause 6 Notification of Ministry of Industry, B.E. 2551 in 2008.

<sup>16</sup> Clause 19 Chapter IV Ministerial Regulation, B.E. 2537 (1994) Issued pursuant to the Hazardous Substance Act B.E.2535 (1992)

- (6) Parking area: a parking area for the transport vehicle which is sufficiently spacious so as not to create a nuisance or obstruction to public traffic after taking into consideration the size of operation, type of containers, quantity and type of hazardous substance being transported; in the case where there is pumping or packaging of the hazardous substance in the parking area, the vehicle must be equipped with an appropriate pumping system, spill or leak prevention system and fire prevention. These provisions shall not apply to the transport of asbestos in the form of finished products sold directly to consumers.

### **Regulations on manufacturing of chrysotile containing products**

Location of factory: For any province that has designated an industrial area pursuant to the law on urban planning, an industrial estate area pursuant to the law on industrial estate, or an industrial zone pursuant to the law on factory/ a production facility of asbestos with machinery powered by at least 50 horsepower or at least 50 workers, or uses at least 500 kilograms per day of asbestos in the production process, must be located in these areas. However, if such areas are insufficient in size or have conditions which are unsuitable for the production of asbestos, or the province has not yet designated such an area, then permission to install a production facility outside such areas may be considered.

A production facility of asbestos must be located in a suitable setting and must facilitate safe transportation of the asbestos. The facility shall not cause nuisance, pollution or any adverse effects on rivers, canals, water reservoirs, or natural and environmental conservation sites, and must not be situated in the following areas:<sup>17</sup>

- (1) within 500 meters from the Royal premises;
- (2) in the zone of housing development, real estate, buildings, townhouses or condominiums for residential purposes;
- (3) in the shopping center area;
- (4) within 100 meters from public places such as schools, educational institutions, temples or religious places, healthcare facilities, historical sites or offices of government agencies.

A production facility of the asbestos must have an empty space surrounding the building for the control and prevention of accidents as appropriate to the chemical properties of the asbestos.<sup>18</sup>

Requirements for a building: the asbestos building must meet the specifications as follows:<sup>19</sup>

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<sup>17</sup> Clause 5 Chapter II Regulations of Ministry of Industry, B.E. 2537 (1994)

<sup>18</sup> Clause 6 Chapter II Regulations of Ministry of Industry, B.E. 2537 (1994)

<sup>19</sup> Clause 7 Chapter II Regulations of Ministry of Industry, B.E. 2537 (1994)

- (1) A building of two or more levels must have at least one external fire escape stairwell at each level.
- (2) The building floor must be rigid and steady, without a spot that can collect water or become slippery which could easily cause an accident
- (3) Materials used for construction must be appropriate for the type of operation pursuant to its scale and the properties of the asbestos and not pose a fire hazard.

Requirements of facilities: The recipient of a permit for production, import, export or possession of asbestos must provide the following to the workers:<sup>20</sup>

- (1) Emergency eyewash, as necessary and suitable for the properties of asbestos and the size of its operation, to preliminarily wash the body when in contact with the hazardous substance. Provide workers changing rooms and washing facilities equipped with materials and equipment for the workers as necessary and appropriate.
- (2) Personal protection equipment (PPE), as necessary and suitable for the job description, as well as measures for maintaining such PPE in good condition.
- (3) First-aid kit together with first-aid advice that are suitable for the type of asbestos.
- (4) Devices, materials or any equipment to prevent, control and mitigate an anticipated accident, as well as measures for maintaining such devices, materials and equipment in good condition.

In the case where there is a release of wastes, pollutants or any materials from an asbestos production facility or an asbestos storage facility that affects the environment, the recipient of the permit shall undertake as follows:<sup>21</sup>

- (1) to provide a tank or a sump to collect wastewater from the operation for subsequent treatment, or install an efficient wastewater treatment system to the specified quality set forth in the Notification of the Ministry of Industry regarding effluent standard.
- (2) to provide an efficient air pollution control system, which can reduce contaminants in emitted air to a level not exceeding that set forth in the Notification of the Ministry of Industry in relation to air emission standard.

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<sup>20</sup> Clause 18 Chapter IV Regulations of Ministry of Industry, B.E. 2537 (1994)

<sup>21</sup> Clause 20 Chapter IV Regulations of Ministry of Industry, B.E. 2537 (1994)

- (3) to dispose a container of asbestos including its residues by applying a method that is suitable and that such disposal operation shall not be carried out in the area that may potentially pose a danger to human, animals, plants, properties or the environment.

Limit of asbestos exposure in workplace: Notification of the Ministry of Interior on Working Safety in Respect to Environmental Condition (Chemical) B.E. 2520 in 1983<sup>22</sup> provides the Time Limit Values – Time-Weighted Average (TLV-TWA) in the surrounding air for asbestos (regardless of any type of asbestos) and asbestos fiber in working place is 5 fiber/cc.

In addition, Ministry of Labor issued several Notifications, such as Notification on Determination of category and type of chemicals 1992, Safety report and Chemical surveillance report 1992 and regulations on hazardous substance transportation, keeping, moving, packaging and utensils. However, these notifications did not mention Asbestos.<sup>23</sup>

### **Regulations on use of chrysotile-containing products**

Law policy on labeling the asbestos-containing products was proposed in 2008 and issued by the Consumer Protection Board in 2009. Accordingly, all the asbestos-containing products including brakes, clutches, asbestos-containing building materials such as roofing tiles, floor baseplates, plates and cement pipes must be labeled an asbestos-containing warning.<sup>24</sup> In addition, the product label must include detailed instructions on safe use and information on personal protection devices.<sup>25</sup> Label on the product includes the text line “Danger to health”.



Danger to Health!

### **Regulations on environment**

In relation to the pollution control, the Ministry of Industry issued the following rules: Regulation No. 25 (1988) demanding all the factories to apply proper treatment measures for

<sup>22</sup> See [http://www.ilo.org/public//english/region/asro/bangkok/asiaosh/std\\_leg/national/thailand/thsfenv2.htm](http://www.ilo.org/public//english/region/asro/bangkok/asiaosh/std_leg/national/thailand/thsfenv2.htm)

<sup>23</sup> Pitchaya Phakthongsuk, *Primary, Secondary and Tertiary prevention of Asbestos-related disease*, 2011, p.87

<sup>24</sup> Section1 Notification No. 27 of Consumer Protection Board on asbestos-containing labelling 2009

<sup>25</sup> Section 3 Notification No. 27 of Consumer Protection Board 2009

pollutant materials and wastes; Regulation No.57 (1990) regulating that all the wastes specified in Basel Convention are the hazardous wastes and must be put under the control of law.

Despite the general regulations on waste treatment applicable to the asbestos production and storage facilities (Clause 20 Chapter IV Regulation of Ministry of Industry, B.E. 2537 (1994), the absence of specific regulations, finance and human resources makes the mechanism on monitoring and control of wastes in production and storage ineffective and unenforceable.<sup>26</sup> According to Annex 2, Ministerial Regulation No. B.E. 2548 (2005), the chrysotile waste is considered as toxic waste if it is in a friable state and has asbestos concentration from 1% upwards.

Under the assistance of WHO and ILO, Ministry of Public Health hosted the training programme to enhance the capacity of physicians for the improved diagnosis and surveillance of asbestos-related diseases;<sup>27</sup> The Asbestos monitoring program was also launched. For example, the workers' health monitoring program 2009 in 26 factories and pleural mesothelioma monitoring programme in the hospitals were carried out. In 2011, the Federation of Occupational Health, Safety, and Environment at Work proposed to establish Thai Asbestos Surveillance System;<sup>28</sup> however, such system has not been established yet.

### **Regulations on health and employees**

Public Health Act 1992 determines the activities related to the asbestos harmful to people's health, inclusive of working in the motorcar brake and clutch production facilities; exposing to the asbestos contained in the roofing tiles, floor plates and water pipes; building. However, for a long time, Thailand has not established health monitoring system to identify the effect of asbestos on health, lacked the connection with diagnosis and report of the asbestos-related diseases.<sup>29</sup>

After Bangkok Declaration 2006, the National strategy plan for prevention and control of asbestos-related diseases was implemented under the assistance of WHO and ILO. The first plan was executed for 5 years (2007-2012) with the objectives: protecting the workers and public; controlling and banning use of asbestos in industries; enhancing public awareness of impact on

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<sup>26</sup> Pitchaya Phakthongsuk, *Primary, Secondary and Tertiary prevention of Asbestos-related disease*, 2011, p.6

<sup>27</sup> Dr. Somkiat Siriruttanapruk, Strategy and implementation of the programme for the prevention and control of pneumoconiosis in Thailand, EPTS-2013, p.8

<sup>28</sup> Xem Pornchai Sithisarankul, Current activities towards banning asbestos/chrysotile in Thailand, APNARI 26-27, November 2011, at

[http://www.krcard.org/common\\_english/filedown.php?tid=board\\_dataroom2011\\_6&ono=12&n=1](http://www.krcard.org/common_english/filedown.php?tid=board_dataroom2011_6&ono=12&n=1).

<sup>29</sup> Linhui Li, Asbestos and asbestos waste management in the Asian-Pacific Region: trends, challenges and solutions, *Journal of Clean Production* 81(2014), page.222

health due to asbestos; improving the asbestos-related diseases diagnosis and monitoring system; cooperating among the relevant agencies at all level.<sup>30</sup>

The maximum exposure limit to asbestos dust for the workers under the Labor Law is 5 fibers/ml of air<sup>31</sup>.

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<sup>30</sup> Department of Disease Control: “Protecting people from asbestos”, Proceedings of Asian Asbestos Conference, 26–27/7/ 2006, Bangkok, Thailand.

<sup>31</sup> World Health Organization 2014, Chrysotile Asbestos, WHO Library Cataloguing-in-Publication Data, p 19.