

## 17. ETERNIT IN DENMARK 1928-1986

Kurt Jacobsen<sup>1</sup>

In 1986, Denmark banned all use of asbestos including production of asbestos cement. The decision followed a number of actions from workers who refused to work with asbestos cement and the opening of a dramatic court case in which 36 workers sued the Danish Eternit company Dansk Eternit-Fabrik A/S (hereafter referred to as Dansk Eternit), demanding economic compensation for work-related diseases caused by the use of asbestos in the production of asbestos cement.

Asbestos was used in Denmark from 1899 for insulating hot-water pipes, and in 1928 the production of asbestos cement started. Shortly after, the Danish Working Environment Authority, DWEA, realized the health dangers caused by asbestos. Following WW2, Danish medical doctors as well as the DWEA had full knowledge of international research on asbestosis and other asbestos-related diseases, and regular medical examinations of Dansk Eternit workers documented beyond doubt that many of them were suffering from asbestosis. Yet, it was only in the early 1970s that the authorities began to prescribe effective workers' protection measures, and it took another 15 years before a ban was carried through.

Dansk Eternit was founded in Aalborg in December 1927, and the production of asbestos cement sheeting,

mainly for roofing, started in April 1928. The founders of the new company were the leading Danish construction and cement corporation, F.L. Smidth & Co. Ltd, and a group of its subsidiaries, all in the cement industry. The mother firm itself signed up for 40 percent of the share capital [1]. Despite subsequent changes in formal ownership through the years, Dansk Eternit has remained under the full control of F.L. Smidth. It also continues to be the sole manufacturer of fibre cement in Denmark.

In the beginning, output was very modest with only one production line; but it grew very rapidly, as is reflected in asbestos imports. In 1928, the company imported 17,000 kg of raw asbestos; this increased to 33,000 kg the following year, and in 1933 reached 260,000 kg, mostly from Russia, Canada and Rhodesia [2].

In 1935, the production facilities were extended with a second production line, and the same year the import of asbestos reached 680,000 kg, most of it from the Amiantos Mine in Cyprus that became the company's main supplier for the next 50 years (in 1936 F.L. Smidth bought the mine through an English subsidiary and Amiantos remained under the company's full control until it was sold in 1986). A third line was opened in 1937, and shortly after a new product line of asbestos



Dansk Eternit workers in 1929 (photographer: unknown; photo: Aalborg Stadsarkiv).

<sup>1</sup> Kurt Jacobsen: Professor of Business History at the Centre for Business History, Copenhagen Business School; email: kj.lpf@cbs.dk

cement pressure pipes for water supplies and sewerage discharge was introduced. In 1938, the production of asbestos cement sheeting exceeded the capacity of the Danish market, so the company began to export. It had great success in this regard, and imports of raw asbestos subsequently grew [3].

By coincidence, the manufacture of asbestos cement in Denmark began the very same year the British Worker's Protection Board began its examination of workers in the British asbestos-textile industry. This examination would go on to document the health dangers from asbestos dust [4].

The results of the report, published in 1930, were known to the DWEA. So, too, was the resulting British asbestos legislation in 1931, which prescribed specific protection measures against asbestos dust and recognized asbestosis as an occupational disease. However, it was not until 1934 that the DWEA for the first time issued a warning against the health dangers caused by asbestos. In an internal note, the factory inspectors were told to pay special attention to certain companies' use of asbestos so the workers involved could be examined: "It is a well-known fact that asbestos dust can cause damage to the lungs similar to silicosis." It was specifically mentioned that asbestos was used in the production of asbestos cement. In its annual report for 1934, the DWEA also issued a warning against the silicosis dangers from asbestos [5].

In 1938, silicosis was recognized as a work-related disease in relation to asbestos production, but it was only in 1941, that the DWEA's physicians began to use the term "asbestosis" to differentiate the disease from silicosis. It was pointed out that asbestosis was more difficult to diagnose on X-rays than silicosis and that the disease had "a rather quick and mortal course." Furthermore, it was mentioned that asbestos exposure "seems to predispose the development of lung cancer." [6]

In 1937, the local factory inspector issued the very first recommendation to Dansk Eternit about improvement of the ventilation in a specific part of the production facility. On the same occasion, the inspector recommended that the asbestos workers directly affected by asbestos dust should have their lungs X-rayed and examined by medical doctors. The X-ray examinations were performed in 1938 in the local public hospital, but organized and paid for by the company. This made the DWEA's physicians rather sceptical – especially as they were receiving the results via the company's management. The physicians demanded that the affected workers in the future should be X-rayed and examined on an

annual basis by the DWEA's own specialists with no interference from Dansk Eternit, which the company accepted.

In March 1940, the first 21 workers, with periods of employment ranging from one to 12 years, were X-rayed. The medical report of April 7, 1940 stated that four workers seemed to have asbestosis "in an early stage," while four had "doubtful" symptoms. Thirteen workers were definitely free of symptoms. The conclusion was that "there is a manifest asbestos danger in the Eternit Company," and it was recommended that immediate precautions be taken to "fight the dust danger" and that the DWEA's Chief Physician should carry out an inspection of the Dansk Eternit premises [7].

Nothing came of this, however; on April 9, Denmark was occupied by German forces, and during the next five years Dansk Eternit was cut off from supplies of raw asbestos. The precautions now became superfluous as the company, based on a German patent, developed an asbestos-free fibre cement, called Cembrit, using cellulose fibres that, according to the company, had almost the same "magnificent qualities" as the asbestos-based product [8].

Nonetheless, the use of asbestos resumed after the ending of WW2 in 1945, and on February 15, 1947 the DWEA issued its first legally binding prescription to Dansk Eternit, ordering that the workers should "unconditionally" wear dust masks when working with dry asbestos. In the very same letter the company was urged to develop "methods for dust-free handling and transportation of the asbestos." [9] In its answer of February 19, 1947, the company responded that, though X-ray examinations of the workers had shown no asbestos-related health effects, it would obtain the necessary number of dust masks. The suggestion to develop dust-free handling and transportation methods was not noted [10].

The post-war years showed a remarkable growth of Dansk Eternit. Extension of production continued steadily through the 1950s with asbestos cement sheeting the main product. As a result, the importation and use of raw asbestos increased to around 10,000 tons [11].

The DWEA's physicians again became worried; three dust recordings in 1949, 1957 and 1958 showed alarmingly high concentrations of asbestos dust – up to 26 times the American limit values of which the DWEA were aware – but no actions were taken despite recommendations from the physicians [12]. In all, no further prescriptions were issued for the next 20 years, except

that the DWEA in 1960 “seriously” asked Dansk Eternit to react “positively” to its recommendation of developing dust-free handling and transportation methods. On the same occasion, and with more binding force, Dansk Eternit was told that it was “an ultimate demand” that the obtained dust masks actually be used [13].

This more stringent attitude, though it was only articulated on a single occasion, resulted from the fact that a survey had revealed that only 7 workers out of 45 were wearing dust masks. More seriously: of 63 X-rayed workers, 10 returned with “evident” and five with “suspected,” meaning incipient, asbestosis diagnoses. This meant that nearly 25 percent were stricken by the deadly disease [14].

Since the mid-1950s the numbers of asbestosis-stricken workers at Dansk Eternit had been slowly, but steadily increasing; but in 1960 peaked, a consequence of the long incubation period of the disease, and in following years the numbers stabilized [15]. The workers, however, were not informed – at least only a few of them – and neither was the public. In 1960, almost all workers were told that they were completely healthy, and in the relevant section in the DWEA’s annual report about lung diseases caused by dust only a single insulation worker who had developed asbestosis was mentioned. In this sense the year 1960 also marked a culmination of 40 years of suppression and double-dealing [16].

Unlike the affected workers and the public, evidently the management of Dansk Eternit was fully informed about the results of the X-ray examinations and the “health dangers at Dansk Eternit.” [17] Their strategy to protect the health of affected workers involved having them transferred to work where they were not directly exposed to asbestos dust. This meant that the management had a detailed knowledge of the asbestosis dangers throughout all these years, but only very few real precautions were taken to protect the workers and then only after recommendations and orders from the DWEA.

One reason given for not informing the affected workers was to avoid “anxiety,” as a local lung physician wrote to the DWEA’s Chief Physician in 1948 [18]. Furthermore, DWEA physicians travelled from Copenhagen to Aalborg on several occasions to calm worries and prevent disturbances among the workers. At the same time, however, they were writing articles in medical journals and books about the deadly dangers of asbestos exposure. Following from this other aspect of their work, asbestosis was recognized as a specific work-related disease in 1954.

More particular problems arose when workers asked why they were transferred to other work, even though they were told that they were not ill: “There has been some unrest when it has been suggested to the management that workers were transferred from dusty to non-dusty work,” two physicians reported to the DWEA in 1955 [19].

As a result of the suppression of information and double-dealing, most of the asbestosis cases were not reported to the Directorate of Accident Insurance. According to Danish legislation it was an obligation of the company to report work-related diseases, but also the physicians had an obligation to report. However, only two work-related lung diseases were reported before 1962, and in the following years the number remained far below the ascertained incidents. For quite a lot of the stricken workers this meant that they – or their surviving relatives – were excluded from receiving economic compensation to which they were entitled according to the law.

1960 was also the year when it was definitely documented that asbestos caused mesothelioma, and in 1968 Dansk Eternit’s management and board was informed, that one asbestos fibre might be sufficient to cause the disease, and so was the DWEA [20]. This did not, however, lead to any stronger anxiety over asbestos cement production in Aalborg. With the economic boom of the 1960s and the rise of the Danish welfare state, Dansk Eternit instead experienced an almost explosive and unquestioned growth with the opening of five new asbestos sheet production lines and a rise in the number of workers to 2,000. The company’s annual asbestos imports increased from about 15,000 tons in 1960 to a stabilized level of around 25,000 tons from 1970 onwards. In 1970 the DWEA issued a regulation for asbestos-work with prescription for wearing dust masks etc, but no progress was made, however, on the protection of Dansk Eternit workers against the dangers of asbestos until the workers themselves began to act.

In 1969, the Cement Worker’s Union in Aalborg arranged group life insurance cover for its members. This gave the union access to all health information on the asbestos workers, from which they discovered that 75 of their colleagues in 1969-1972 took early retirement because of lung diseases, and that 10 of them died shortly after [21].

In 1973, the union took action by reporting collectively 81 asbestos workers to the Directorate of Industrial Accident Insurance. It was an extraordinary event – and much more so as all cases were accepted, 23 with confirmed asbestosis [22]. An “asbestos committee” with





The Dansk Eternit factory, 1971 (photographer: Clausens; photo: Nordjyllands Historiske Museum).

representatives from both the workers and management was established at Dansk Eternit, and the DWEA tightened its grip, with annual dust records and a wave of prescriptions throughout the 1970s. This was the beginning of a constant struggle between the DWEA and the workers on the one side and the company on the other about implementation of the DWEA's numerous prescriptions and recommendations.

But other groups of workers were on the move. Annual X-ray examinations since 1952 had revealed a high incidence of asbestosis among insulation workers in Copenhagen; this led to the recognition in 1954 of asbestosis as a work-related disease. Now the insulation workers, supported by shipyard workers, pushed for a ban on the use of asbestos in insulation; the industry agreed because it was possible to replace asbestos with other material. In the decisive meeting on November 2, 1971, Dansk Eternit participated as observer and protested strongly against a ban "for fear that the next step would be a ban against the use of asbestos in eternit [asbestos cement]." [23]

The company could not, however, prevent a "ban on the use of asbestos in certain forms of insulation," which was issued on January 14, 1972. The ban included the use of asbestos in heat, noise and humidity insulation materials. In a supplementary circular letter, the DWEA announced that no decision had been taken regarding rigid building products containing asbestos. Neither was lining for brake blocks included [24]. At Dansk Eternit

the manufacture of asbestos cement sheeting could continue, but time was running out.

In 1978, two medical studies of cancer and lung diseases among the workers at Dansk Eternit were released. One of them, performed by the Danish Cancer Register, included 6,094 workers for the period 1943-1972. The other included 189 former workers, employed at the company (1928-75), who had all died after 1951. Among the DWEA's conclusions on the two studies was that they both "document an over-frequency of lung cancer. Two incidents of mesothelioma have been documented." [25]

In the public as well as among politicians a demand for a total ban on all use of asbestos was raised, and on November 13, 1979, it finally came. With a proclamation from the Ministry of Labour, all importation, manufacture and use of asbestos was banned from January 1, 1980. The ban was modified, however, by two important exceptions, namely the use of asbestos until 1985 in certain asbestos products, mainly asbestos cement products, and "until further notice" in the production of brake blocks: "In these two fields which have an essential socioeconomic importance ... adequate substitutes have not yet been developed," it was explained. As the manufacture of asbestos cement at Dansk Eternit accounted for 90% of all import and use of asbestos, the effect of the ban was limited [26].

In 1984, Dansk Eternit applied for a prolongation of the dispensation until 1990, which was met by protests

from the workers and their union – but with little success. The prolongation was granted in February 1984, but at the same time building workers began to refuse to work with asbestos, and in schools and kindergartens employees as well as parents protested against the presence of asbestos in the indoor environment. The public and political demands for an effective ban grew, and the pressure increased when 36 Dansk Eternit workers and widows, with support from the union, issued a summons against Dansk Eternit demanding economic compensation for their losses on March 6, 1986.

Two months later, on May 28, 1986, the Danish parliament passed the final decision for an action plan for an asbestos-free Denmark. As a consequence, on the following day Dansk Eternit was ordered to stop all production of asbestos-containing fibre cement by the end of the year. The dispensation for the use of asbestos in brake blocks was not affected, but a few years later this too was dropped.

Meanwhile, the court case was proceeding, and on September 14, 1988, Dansk Eternit was found to be in violation of several provisions in the Danish Workers Protection Act and was ordered to pay economic compensation to 24 Dansk Eternit workers and widows. The Company appealed to the Supreme Court with the following argument from the chairman of the board, Christian Kjær, who is the grandson of the main owner and managing director of F.L. Smidth & Co. Ltd, who, in turn, was behind Dansk Eternit: “We don’t feel that we are trying to get out of anything, but no one in the world has ever told us that the product caused diseases.” Asked whether he believed that the company would win in the Supreme Court, he answered: “I hope so. If not, I fear that we will have a situation as in USA, where a number of firms have to close down every year in order to avoid demands for compensation.” [27]

On October 27, the Supreme Court found Dansk Eternit guilty. It was over – at least when it came to the use of asbestos in Denmark. The health consequences, however, remained. A medical study of 8,588 workers from Dansk Eternit, performed for the Danish Cancer Register in 1985, revealed that 580 had been stricken by cancer, of which 10 had contracted mesothelioma – a significant over-representation. Added to this are an unknown number of workers who came to suffer from asbestosis. The group included all kinds of workers in Dansk Eternit, not just those who had been directly exposed to asbestos, but excluded personnel like cleaning staff, artisans and others who had been working in the plant but employed by other companies [28].

At the presentation of the study, DWEA’s leading physician stated that this was not the end, but that one had to expect that the asbestos would continue to cause cancer until at least 2000. However, past asbestos use proved to have even more far-reaching consequences: today, there are about 100 new cases of mesothelioma in Denmark every year, and the number is expected to increase until 2015, whereafter it is expected to decline [29].

Dansk Eternit now trading as Cembrit Ltd [30] still exists as a prosperous company and a strong international player in the (asbestos-free) fibre cement industry. F.L. Smidth & Co. Ltd. also exists as a prosperous company and is a global player in the construction industry, building cement factories all over the world [31].

The Amiandos mine in Cyprus was sold in 1986 to the Bishop of Limassol, but in 1988 it was closed down. Left is a huge scar in the Trodos Mountains and an unknown number of victims who suffered – and suffer – and died from asbestos related diseases of all kinds including Mesothelioma.

April 2011

## References

1. *Cashbook 1928-1929*, Dansk Eternit-Fabrik A/S, Aalborg Stadsarkiv.
2. *General Balance book 1928-1933*, Dansk Eternit-Fabrik A/S, Aalborg Stadsarkiv,
3. Ibid. 1935. Unfortunately, the books and records of the company are far from complete. Therefore there are no figures for the imports of asbestos after 1935, but they undoubtedly continued to increase until the outbreak of WW 2.
4. Merewether & Price: *Report on the effects of Asbestos Dust in the Lungs and Dust Suppression in the Asbestos Industry*, H.M. Stationery Office, London 1930.
5. DWEA: *Message nr. 35/1934*. DWEA: *Annual Report 1934*.
6. DWEA: *Annual Report 1939-41*.
7. Poul Bonnevie to DWEA, April 4, 1940. Landsarkivet for Nørrejylland: Arbejdstilsynets virksomhedssag vedrørende Dansk Eternit. AT-01, løbenummer 2002/331-349.
8. FLS-NYT. Special issue 1944.
9. DWEA, Aalborg Division, to Dansk Eternit, February 15, 1947. Landsarkivet for Nørrejylland: Arbejdstilsynets virksomhedssag vedrørende. AT-01, løbenummer 2002/331-349.
10. Dansk Eternit to DWEA, Aalborg Division, February 19, 1947. Landsarkivet for Nørrejylland: Arbejdstilsynets virksomhedssag vedrørende Dansk Eternit. AT-01, løbenummer 2002/331-349.
11. Susi Handberg: *Det kriminelle tidsrum*, p. 101.
12. Ibid., p. 111. Mads Bülow: *Under anklage. En journalistisk dokumentation om asbesten og dens ofre*, p. 69.

13. Factory inspector K. Hunderup Jensen to Dansk Eternit-Fabrik, May 9, 1960. Landsarkivet for Nørrejylland: Arbejdstilsynets virksomhedssag vedrørende Dansk Eternit. AT-01, løbenummer 2002/331-349.
14. Mads Bülow: *Under anklage. En journalistisk dokumentation om asbesten og dens ofre*, p. 65.
15. Taken from the physician's reports to the DWEA, analysed in Hans Bülow: *Under Anklage, En journalistisk dokumentation om asbesten og dens ofre*, p. 48-49 and Sussi Handberg: *Det Kriminelle tidsrum*, p. 114.
16. DWEA: Annual report 1960. That the workers were not informed appears in the reports from the DWEA's physicians who handled the X-ray examinations and from interviews with some of the affected workers: Hans Bülow: *Under anklage. En journalistisk dokumentation om asbesten og dens ofre*.
17. Factory inspector K. Hunderup Jensen to Dansk Eternit-Fabrik, May 9, 1960. Landsarkivet for Nørrejylland: Arbejdstilsynets virksomhedssag vedrørende Dansk Eternit. AT-01, løbenummer 2002/331-349.
18. Karsten Isager til Poul Bonnevie, January 1, 1948. Landsarkivet for Nørrejylland: Arbejdstilsynets virksomhedssag vedrørende Dansk Eternit. AT-01, løbenummer 2002/331-349.
19. Jørgen Frost and Aage Grut: *Report nr. 347 of December 17, 1956 to DWEA*. Landsarkivet for Nørrejylland: Arbejdstilsynets virksomhedssag vedrørende Dansk Eternit. AT-01, løbenummer 2002/331-349.
20. William Johnsen: *Note for the board of 30 April 1968*. Aage Grut: *Report to DWEA of 11 June 1968*. Landsarkivet for Nørrejylland: Arbejdstilsynets virksomhedssag vedrørende Dansk Eternit. AT-01, løbenummer 2002/331-349. The reports were written after William Johnsen, who was a technical director in Dansk Eternit, and Aage Grut together had participated in the 2nd International Congress on the Biological Effects of Asbestos, Dresden 22-25 April 1968.
21. Peter Backe-Damgård (Ed.): *Arbejdspladsen Danmark*.
22. Henrik Nielsen and Per Gregersen: *Erhvervs sygdomme anmeldt til Direktoratet for Ulykkeforsikringen 1961-70*. "Ugeskrift for Læger 1978, p. 1573-79".
23. Cited from Susi Handberg: *Det kriminelle tidsrum*, p. 26-27. The story of the insulation workers struggle against asbestos is told in: *Isolering – med livet som indsats – om 5 års erfaring med arbejds-skader*, published by the Insulation Worker's Union.
24. Proclamation of a ban against the use of asbestos in certain forms of insulation. Ministry of Labour, January 14, 1972.
25. Cited from Sussi Handberg: *Det kriminelle tidsrum*, p. 154.
26. Proclamation about the use of asbestos etc., Ministry of Labour, November 13, 1979. Printed in DWEA: *Annual Report 1972*.
27. Berlingske Tidende, November 26, 1988.
28. Edith Raffn et al: *Kræftisiko og dødelighed blandt ansatte på en dansk asbestcementfabrik*.
29. Asbestose og kræft i lungehinderne, Danmark 1977-2005. Klinisk Epidemiologisk Afdeling, Århus Universitetshospital 2008. Rapport nr. 40.
30. <http://www.cembrit.com/>
31. <http://www.flsmidth.com/>

## Bibliography

- *Asbestose og kræft i lungehinderne, Danmark 1977-2005*. Klinisk Epidemiologisk Afdeling, Århus Universitetshospital 2008. Rapport nr. 40.
- Backe-Damgård, Peter (Ed.): *Arbejdspladsen Danmark* (Branner og Korch, 1978)
- Berlingske Tidende, November 16, 1988.
- Bülow, Hans: *Under anklage. En journalistisk dokumentation om asbesten og dens ofre* (Tiderne skifter, 1989)
- Danish Working Environment Authority: *Annual Reports*.
- FLS-NYT. Special issue 1944.
- Handberg, Susi: *Det kriminelle Tidsrum* (Cementarbejdernes fagforening, 1990)
- *Isolering – med livet som indsats – om 5 års erfaringer med arbejds-skader* (Isoleringsarbejdernes Fagforening 1988).
- Merewether & Price: *Report of the Asbestos Dust in Lungs and Dust Suppression in Asbestos Industry*. H.M. Stationery Office, London, 1930.
- Nielsen, Henrik and Gregersen, Per: *Erhvervs sygdomme anmeldt til Direktoratet for Ulykkeforsikringen 1961-70*. "Ugeskrift for Læger 1978, p. 1573-79".
- Rafn, Edith et al: *Kræftisiko og dødelighed blandt ansatte på en dansk asbestcementfabrik* (Cancerregisteret, Institut for Cancer Epidemiologi under Kræftens Bekæmpelse, 1987).
- *Report on the Health Effects of the Asbestos Mines on the Population of the Neighbouring Communities*. Prepared for the Ministry of Health in Cyprus by Leonidou Associates in cooperation with the Institute of Cancer Research, UK, April 2005.

## Archival sources

- Aalborg Stadsarkiv: Dansk Eternit-Fabrik A/S papers.
- Landsarkivet for Nørrejylland: Arbejdstilsynets virksomhedssag vedrørende Dansk Eternit. AT-01, løbenummer 2002/331-349.