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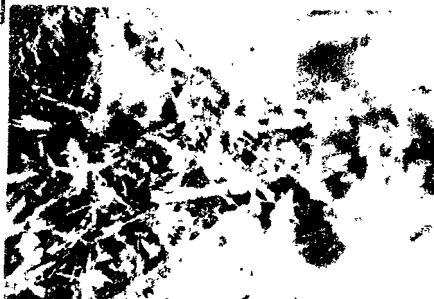
Special Report 1

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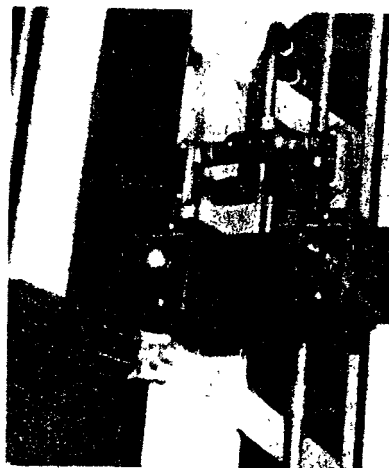
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Killer asbestos



Asbestos fibres: the killer dust



Asbestos warnings: yet to find a place in India

CAUTION

**ASBESTOS
DUST HAZARD**

On 10 January, Ganga Asbestos Cement Ltd. entered the capital market with a small issue of Rs. 119 crores towards equity capital for a project to manufacture asbestos cement pipes. Its good reception from investors seems almost assured as the new company has signed a technical collaboration agreement, with a Birla firm, Hyderabad Asbestos Cement Products (HACP) Ltd.

The asbestos industry in India has come a long way. When HACP itself entered the asbestos products market, it sought and obtained technical collaboration with the world's largest asbestos manufacturing company, Johns Manville Corporation (JMC), USA. Today, HACP exports not only its products, but also technical knowhow and is promoting joint ventures in Nigeria and Nepal. In the meantime, however, things have not been going so well for their erstwhile technical collaborators the Johns Manville Corporation (JMC). In August this year, it took the unorthodox step of applying for liquidation under the US Bankruptcy Code (see box 1).

WORKERS' PLIGHT

Gajanan Dagdu Sawant died in 1982 of asbestosis. Sawant worked for a medium scale asbestos textile manufacturing unit situated in Andheri, Bombay. In the same unit there are 20 other workers who also suffer from asbestosis in varying degrees.

Rajagopal, a worker in the same factory who suffers from asbestosis, has gone to court, demanding a proper medical examination and compensation from the Employees' State Insurance Corporation (ESIC). (see box 2). But for every Rajagopal, perhaps there are hundreds of others who do not even know that they suffer from asbestosis. Jairam Saktharam, who joined Hindustan Ferrodo Ltd. (HFL) at the age of 16, quietly left in 1981 after 20 years of working, with a pittance for gratuity, for probably similar reasons, and is now lost in the multitude of silent sufferers.

You have probably never seen the label shown alongside before. And the reason for this is that the people who ought to use it don't bother to. It might well have come from any one of those numerous 'pallets' or containers that bring in over 80,000 tonnes of imported asbestos fibre into India every year (see table 2). It's also probably affixed on to each little piece that HACP, HFL and others export every year. And yet at Cotton Green, Bombay, where asbestos fibre containers are being unloaded, a split sack covers a worker in dust from head to foot. Reportedly, raw asbestos is not in the list of hazardous cargo prepared

by the Port Trust. In the Bombay Docks, workers can be seen eating their lunch sitting on heaps of loose asbestos. Needless to say, if you try to photograph them, your camera will be confiscated.

The one time 'magic mineral' of the 20th century, even though it has been proved to be a 'killer', continues to be used brazenly by firms that have scant regard for human lives. The fact that asbestos has been in widespread use since the beginning of this century in the building industry as electrical and thermal insulation, in brake and clutch lining for automobiles, in household and industrial floor tiling and in probably 3,000 more areas means that almost everyone of us has had some level of exposure to asbestos fibre for years.

MEDICAL AWARENESS

Asbestosis became the subject of detailed medical discussion in Britain in 1927. It became a notifiable disease in India vice an amendment in 1976 to the Factories Act of 1948. However, more dangerous diseases like lung cancer and mesothelioma continue to remain out of the Schedule. Asbestos is a non-malignant, irreversible lung disease caused by the inhalation of asbestos dust. It is characterised by diffuse scar tissue in fibrosis, which thicken the lining of the lungs resulting in a progressive breathlessness. This also tends to strain the heart. The degree of risk of developing asbestosis appears related to the duration and level of exposure to asbestos. Normally the disease takes many years to develop and thus, workers exposed to asbestos may not show the signs of the disease for a long period of time.

It is only when the evidence of the carcinogenic potential of inhaled asbestos fibres ac-



ATENCAO

Contém fibras de amianto
Evite criar po
Respirar po de amianto pode ser
prejudicial à saúde
Fumar aumenta
consideravelmente o risco à saúde

CAUTION

Contains asbestos fibres
avoid creating dust
breathing asbestos dust may
cause serious bodily harm.
smoking greatly increases the
risk of serious bodily harm

ATTENTION

Contient des fibres d'amianto
evitez de créer de la poussière,
respirer la poussière d'amianto
peut endommager gravement votre santé,
et fumer augmente de beaucoup ces risques

ATENCION

Contiene fibras de amianto
Evite crear polvo
Respirar polvo de amianto puede ser
Nocivo para la salud
Fumar aumenta considerablemente el
Riesgo de contraer enfermedades

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accumulated, and lung cancer with malignant tumours was observed in workers already suffering from asbestosis, that people all over the world started to take notice of the health hazards of asbestos. Along with lung cancer, instances of mesothelioma of the pleura and peritoneum among asbestos workers and their relatives only served to further emphasise the potential dangers of uncontrolled exposure to asbestos dust.

According to Dr. Irving J. Selikoff of the Mount Sinai School of Medicine, New York, an internationally acknowledged authority on asbestos related diseases, "There is no limit to the danger of asbestos dust: the more of it there is the greater the cancer risk. The less, the lower the risk." The risk doesn't disappear with lower exposure levels.

Recognition of the potential health hazards from asbestos has resulted in increasingly stringent controls on the production and sale of asbestos products in the West. Yet, in the Third World, production of asbestos products has been growing due to the largely unregulated state of production and marketing in these countries. Exports of these products back to the West often fulfils other 'national objectives' at social costs that are left largely outside the scope of open discussion and debate.



Workers unloading asbestos packs at Cotton Green (Bombay docks)

The asbestos industry in India is in this sense fairly similar to that in other developed countries (LDCs) even though almost all the large scale units in the country are either subsidiaries of western transnationals (TNCs) or have acquired technical collaboration from them, (see table 1). The industry employs over 7,000 people in 20 units spread over Andhra Pradesh, Gujarat, Maharashtra,

Tamil Nadu and Haryana. Added to these are numerous small scale units, some functioning as subsidiaries of larger units.

Unfortunately, except in official circles there has been little appreciation of the problem in India. True, asbestos came into the Factory Rules in 1970, and asbestosis was added to the list of notifiable diseases in 1975, but public interest in health hazards from as-

The fall out!

"Millions of American workers are handling asbestos on their job site and medical experts estimate that because of this, 400,000 workers will die of cancer during the next half century." This cryptic warning was sounded by the Oil, Chemical and Atomic Workers Union (OCAWU) of USA in 1978 in an extremely informative slide-show that demonstrated unequivocally that asbestos kills.

The biggest 'victim'. And quite justifiably, the biggest 'victim' of this new awareness is the world's largest producer of asbestos — Johns Manville Corporation, USA with closely held subsidiaries in Canada and others strewn over the rest of the world. Manville's interests (technical or financial) in India include Shree Digvijay Cements and Asbestos, Suri Asbestos, and Hyderabad Asbestos Cement (with which Manu had a technical collaboration when it started).

Manville Corporation is now being sued at the rate of 500 new cases per month by former employees or their survivors who, unable to receive fair compensation through normal channels, began this flood of law suits. In one of the recent judgements, a worker was awarded \$2.6 million in damages.

Worried at the prospect of more such

judgements, Manville employed two consulting firms, Environmental Resources Inc. and Statistics and Epidemiology Research Corporation to estimate the potential size of its liabilities stemming from ongoing and possible asbestos related law suits. The figures are mind boggling. According to the 16,500 suit pending settlement, the first named consultant concluded that at least 52,000 suits may well be on their way. Subsequent estimates suggested the possibility of the number of suits reaching 125,000. With settlements being awarded at an average of \$40,000 per case in 1982, litigation could well cost Manville Corporation \$2.5 billion. The second named consultant number and that cost could reach up to \$6 billion if the number of possible suits is considered. Setting up a fund to meet such a contingency would require the liquidation of the company's \$2.2 billion assets.

But Manville Corporation is in no mood to say goodbye. On 26th August 1982, in an unforeseen move the company filed for protection under Chapter 11 of the US Bankruptcy Code, which shields a concern from creditors' law suits as it works out an orderly reorganisation including repayment of debts. Almost simultaneously Manville is also suing for \$2 billion in damages from insurers alleging faulty settlement of its

claims on them.

A different situation. If Manville finds asbestos choking it to death, one would expect the fate of Turner and Newall (T&N) or Britain to be no better. T&N subsidiaries in India include Hindustan Ferrodo and the Asbestos Cement Co. Ltd. Last year T&N made \$33.9 million provision in its account books for asbestos disease related claims. In one case T&N reportedly paid \$650,000 towards a total settlement of \$1.4m. It expects, however, that in the future also these claims would not rise to more than 1% of the annual turnover. T&N's confidence stems from the fact that none of its most susceptible operational areas are located in Zimbabwe, Swaziland, Pakistan, Nigeria and South Africa — all with low levels of worker awareness and high levels of government liability.

India is also not an exception as far as lack of awareness about asbestos related diseases is concerned. The asbestos industry in India has been growing despite the increased awareness of asbestos hazards in the West. Consider, for example, the fact that between 1976 (when OCAWU first drew attention to the health hazards from asbestos) and 1980-81, the imports of asbestos fibres into India have risen by almost 50% from 56,404 tonnes to 84,264 tonnes.

Rajagopal — fighting to live!

Will writ petition No. 1316 of 1982 filed before the Bombay High Court herald a new era in employer — employee relations? On one side stand arraigned the director-general ESIC, the director-general, Central Labour Institute (CLI), the chief inspector of factories, Maharashtra, and M/s Hindustan Ferodo. The plaintiff: one dying man, dying because no one told him the job he honestly did was killing him every minute he was doing it.

S. Rajagopal joined Hindustan Ferodo in 1961 as an operator in the brake and clutch-lining department. The department uses a dry process which works with asbestos powder. It was just a matter of ten years before the trouble started.

Asbestosis. Chronic cough with expectoration and dyspnoea (difficulty in breathing), the commonest symptoms of asbestosis, continued to be treated by the ESI medical teams, and private practitioners as yet another case of asthma or bronchitis. All that lasted till September 1976, when, finally, the Sion Hospital authorities pronounced their diagnosis that asbestosis had claimed yet another victim.

Rajagopal's representations to the management of Hindustan Ferodo produced no reaction at first, and then the decision was



Menon: sceptic of outcome

taken to refer him to Dr. Dave, medical inspector of factories, Maharashtra. Strangely enough, the latter's conclusions turned out exactly contradictory to the earlier diagnosis. On the basis of what tests did Dave venture his opinion remains to Rajagopal's lawyer, K.P.V. Menon, "largely mysterious". In July 1977, Dave went on to suggest that it "probably was a case of acute bronchitis having an allergic component" and that it "probably was a sequel to pulmonary infection that he may have had in the past."

Petitioning even the chairman of Turner and Newall did not help. Even as the Sion Hospital authorities advised him immediate treatment, Rajagopal resigned from HFL to enable him to collect his gratuity as he was at that time in urgent need of money for his wife's medical treatment.

Claims not met. He was claiming a writ of mandamus compelling the ESIC and the CLI jointly or severally to subject him to an examination of his disease by experts and to submit the report in the Bombay High Court. He was also claiming payment of an interim allowance during the petition and compensation for occupational disease from the ESIC.

The writ petition was the only alternative. It has finally been heard, and the ESI has been directed to constitute a medical board and subject him to an examination. Even though the examination was completed on 30th September 1982, Rajagopal still awaits a decision.

Menon, after pushing through the matter, remains cynically sceptic of the outcome. But he is convinced that if the workers still in employment were to approach him, he would have a much stronger case in hand.

The question, however, remains — for one Rajagopal spirited enough to fight, how many more succumb?

asbestos continued to be low. Then, in 1981, an article appeared in New Scientist by Barry Castleman which highlighted the double standards of TNCs operating in asbestos in India with specific instances of environmental pollution caused by Shree Digvijay Cement Company in Ahmedabad and Rane Linings. This created a flurry amongst who read this article.

PREVENTIVE MEASURES

Since the mid seventies, the National Institute of Occupational Health (NIOH) and the Central Labour Institute (CLI) have been in-

involved in studies of asbestos related diseases.

In 1980 the NIOH conducted a study to evaluate the health hazards due to asbestos in a medium scale asbestos textile unit in Ahmedabad. The report clearly states that the "total and respirable dust and asbestos fibre concentrations were found to be much higher, than accepted norms". This, it was reported, was largely due to the absence of dust control equipment. This report also noted that 15% of total subjects studied showed the presence of asbestos bodies in their sputum. Further, 50% of the working

population had respiratory symptoms, 25% of the working population had crepitations (a crackling sound detected in lungs), and 9% of workers had opaque areas in their lung X-rays.

Given these facts, what can be done to prevent the health hazards associated with asbestos? Technology in the West has geared itself to devising engineering methods such as isolation, enclosures, exhaust ventilation and dust collection equipment to serve as the prime means of controlling direct exposure to asbestos. Reverse-jet, multi-module cased filters, for instance have a proven efficiency of almost 100% in containing asbestos dust. In addition, hand operated and power operated tools with built-in dust-extraction facilities are now available for use by workers handling asbestos.

A variety of personal respiratory protection equipment has been developed for different end-uses. Factories in the West have taken care in layout planning to ensure that the most hazardous jobs are separated from the rest in order to reduce overall dust levels. Showers and changing rooms for workers have been incorporated into plant layouts to ensure that the dusty work clothes are left behind in the factories. With all these efforts being made, dust levels have been significantly reduced inside the work premises.

Table 2:

Imports of raw asbestos

Year	Actual Imports
1978-79	62,707
1979-80	75,470
1980-81	84,264
1981-82	80,854

Portwise imports are in the approximate range a) Bombay-60%, b) Madras-20% and c) Calcutta-20%.

Source: MMTC

Table 3:

Sales to large companies

Name of Company	Approximate sales	
	1980-81	1981-82
Hindustan Ferodo	4,000	4,000
Hyderabad	30,000	23,000
Asbestos Cement		
Asbestos Cement	18,000	18,000
Shree Digvijay	9,000	15,000
Cement		
Sunderam Abex	500	1000
Rane Brake Linings	1,000	1,500

Source: MMTC



Bannerjee: 'management apathetic'

two fibres -- per cubic centimetre, and efforts are continually on to halve that level.

In stark contrast are the horrendous conditions existing in Indian factories. A. Bannerjee, a CITU union leader at the Asbestos Packing and Manufacturing Company (APMC), Bombay, which is a medium scale unit employing 300 workers, tells of two asbestos deaths in 1982. This fact has also been certified by medical reports. Listing mixing and carding operations as potentially the most hazardous (see box 3), he says, "We have absolutely no control equipment. And the best we have is a few exhaust fans. Respirators are unheard of. Workers are simply given a piece of cloth which they tie around

their noses and mouths. In fact, the management has not bothered to provide workers even with proper working clothes."

SHEER APATHY

Bannerjee goes on to talk of the accumulation of waste fibres at various stages of processing and of how these wastes are again mixed with cotton fibre. He complains that "The more the proportion of wastes in the

mix, the more the dust caused, but the management is motivated purely by its notions of profitability. According to Bannerjee, the working conditions are even worse at APMC's nine subsidiary companies located in and around Bombay which are all engaged in related activities like grinding or asbestos mattress manufacture.

According to a study conducted by the CLU in 1981, when it comes to safety measures

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Prabhakar San... gineering Worker at HFL highlights... as a... asbestos... bagging stage... 75 hessian bags... raw asbestos... In... bags used... original... there... there... are... from the por... is today sought to... plastic strip... control...

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INADEQUATE EFF

In 1980, HFL intro... protection equipm... Sanzgiri points ou... control systems th... and that the... a second line of de... Till 1977, HFL s...



It affects not only you but your family too

Table 1:

Major asbestos companies in India

Name of company	Products	Nature of TNC link
Hindustan Ferodo	Brake linings, jointings, limped sheets, yarn, packing cloth, textile mattresses and millboards	Turner and Newall, U.K. (T&F)*
Hyderabad Asbestos Cement Co	Asbestos cement sheets and pressure pipes, jointings, millboards and thermal insulation	Johns Manville, USA (T) and now Societa Italiana Perl Aminto, Italy. (T)
Asbestos Cement Co.	Asbestos Cement sheets	Turner & Newall, UK (T&F)
Shree Digvijay Cement Co	Asbestos cement sheets and pressure pipes	Johns Manville, USA (T&F)
Sundaram Abex	Friction materials like brake linings	Abex Inc., USA (T&F)
Suri Asbestos Industry	Textiles, packings, ropes, laggings, jointings, yarn etc.	Johns Manville, USA (T&F)
Rane Brake Linings	Brake linings and clutch facings	Small and Parkes, UK (T&F)
Reinz Talbros	Asbestos jointings	Reinz Dichtungs — A.G. West Germany (T&F)

* T: Technical

* F: Financial

Source: DGTD Handbook of Foreign Collaborations, 1980

Shree Digvijay Cement's asbestos plant in Ahmedabad, believed to be the subject of the study, is no better. The study revealed that out of 320 workers selected at random over 6.5% suffered from asbestosis. In the fibre-grinding, loading and the pipe in departments workers were exposed to asbestos, crocidolite and chrysotile fibres (see subsequent discussion), and fibre concentrations were found to be much higher than the statutory permissible levels.

The study noted that "dust control measures in the factory had been introduced only in 1979". Whether the management moved fast to ensure better working conditions remains unknown. But its first action is reported to be the retrenching of those workers who the CLU study established as suffering from asbestosis.

Workers in Hindustan Ferodo, the largest Indian manufacturer of friction materials like automotive clutch and brake linings and asbestos textiles went on a seven month strike in 1981 demanding, among other things, better working conditions. Working conditions in HFL today are relatively better than Indian asbestos industry standards, but that not saying very much. HFL is now anxious looking forward to a study on asbestos ex-

Manufacturi

The asbestos cen... combines as... water to iron... pointed in succes... mandril. Depend... proportion by we... may vary from 15... sheets placed i... metal sheets, and... rubbed asbestos sl... of the asbestos sh... high diesel oil (LC... (HSD) is sprayed... ing sheets. While... which is done ma... vapour and asbest... inhaled by workers... Exposure: In the n... contrast, a dry mi... asbestos is first ma... before passing the... sieve cylinder to fo... a process which tak... water, the pipes are

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are relatively better
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HFL is now anxious
study on asbestos ex-

sure that the CLI and the factory inspectorate
or the government of Maharashtra are to
shortly conduct at its Bombay plant

Prabhakar Sanzgiri, president of the En-
gineering Workers Union (affiliated to CITU)
at HFL, highlights the need for taking precau-
tions against asbestos dust right from the de-
bagging stage itself. He recalls that in 1974-
75 hessian bags were still being used to pack
raw asbestos. "In Ferodo those days, many
bags used to be broken. Now we insist that the
original polythene bags are placed in another
polythene bag." The feeding of fibres into the
fibre plant, one of the most dangerous opera-
tions from the point of view of dust exposure,
is today sought to be controlled by putting a
plastic strip curtain on the mouth of the
hopper.

Szgiri also talks of government regula-
tions which require that cleaning and grind-
ing of dotter cylinders in the carding section
should be mechanical processes and says that
"Under a union agreement now, the manage-
ment has decided to import some new equip-
ment from Germany, which should be instal-
led by 26 January."

INADEQUATE EFFORTS

In 1980, HFL introduced personal respiratory
protection equipment on the shopfloor. But
Sanzgiri points out that it is the engineering
control systems that are of primary import-
ance and that the respirators essentially form
a second line of defence.

Till 1977, HFL's plant layout was still rather

outmoded and contained the carding, spin-
ning and weaving sections under the same
roof. It was in this year that the isolation of the
dust-prone carding section was taken up. This
was achieved by using a plastic strip curtain
to separate it from the other sections. Union
representatives admit that this has helped in
making the other areas relatively dust-free but
they say that there is still a lot of scope for
improvement.

The cleaning of carding machines, how-
ever, still involves an exposure to asbestos
dust. The cleaning process involves rotating
the dotter cylinders of the carding machine
while one man brushes off the waste. This is
easily the most dangerous and dust-prone job
on the shopfloor.

HFL's contract department used to handle
an even more dangerous area. Workers had to
go out and spray asbestos fibre for insulation.
This activity was finally stopped when many
workers started suffering from chest diseases.

Union representatives talk of improvements
in the shopfloor layout in HFL, e.g. the provi-
sion of proper ventilation facilities, separate
lockers and bathing facilities for the workers.
But predictably the management's response
has been that all these improvements cost
money. "We are often told," says Sanzgiri,
"how Sunderam Abex has a wage cost which
is only 17% of manufacturing costs while it is
28% in HFL. I wonder what the working con-
ditions in Sunderam abex are like." In any
case, such costs should be counted under
capital expenditure and not under wages, as



Sanzgiri: control systems needed

they are not perks given to workers but an
essential pre-requisite for the manufacture of
asbestos products.

But asbestos product manufacturing units
are not the only places where you might be
exposed to this killer fibre. Breaklining and
grinding operations in every vehicle man-
ufacturing unit, release enormous amounts of
asbestos dust, and asbestos traces are often
found in the sputum of workers in these de-
partments. When complaints of respiratory

Manufacturing processes

The asbestos cement manufacturing pro-
cess combines asbestos fibres with cement
and water to form a slurry which is de-
posited in successive layers on a rotating
mandrel. Depending on the product, the
proportion by weight of asbestos to cement
may vary from 35% to 90%. On drying, the
sheet is placed between two corrugated
metal sheets and pressed to make cor-
rugated asbestos sheets. To prevent sticking
of the asbestos sheet to the hot metal —
light diesel oil (LDO) or high speed diesel
(HSD) is sprayed between the two mould-
ing sheets. While stripping, the sheets,
which is done manually, diesel fumes, hot
apour and asbestos dust are released and
inhaled by workers.

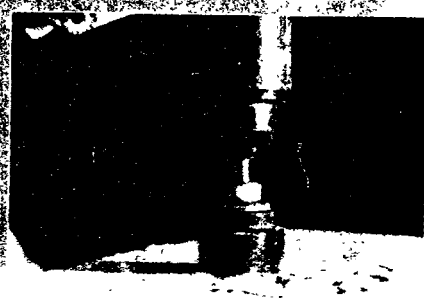
Exposure. In the manufacture of pipes, by
contrast, a dry mixture of cement and as-
bestos is first made and water is added later
before passing the slurry through the hot
sieve cylinder to form pipes. On maturation,
a process which takes 15 days of soaking in
water, the pipes are cut while being rotated



Workers stripping under special lighting and without it

at high speeds. This process invariably ex-
poses the workers to asbestos dust.

In contrast to the relatively "wet" proces-
ses of sheet and pipe manufacture, there
are the "dry processes" of textile weaving
and the friction material manufacturing. In
the manufacture of textiles, the crushed as-
bestos fibres are sprayed into receptacle,
(the fibre plant) for fluffing and combing and
the resultant flocculent soft fibrous output is
mixed with cotton before carding. The card-
ing machine consists of large rotating
cylinders with innumerable wire points



which ensure that the fibres are laid parallel.
The output is in the form of a sliver or rope
which goes through the subsequent proces-
ses of spinning, doubling and weaving.

In the manufacture of friction materials,
fluffed fibres are mixed with metal chips and
friction particles along with binder resins.
This mixture is then either profiled or ex-
truded into the required shapes. At times
woven material is also used in the manu-
facture of friction materials. In all dry pro-
cesses, fibres are widely dispersed over the
working area and inhaled by the workers.

difficulties are made managements use the simplest expedient available—that is, transferring the persons concerned to other departments in the name of job-rotation. No respirator or engineering controls are used. If this is the case in a highly organised user industry with some of the best known Indian companies involved, what the situation might be elsewhere is best left to one's imagination.

VEIL OF SECRECY

The activities of asbestos companies lie cloaked in secrecy. And the only people who can examine them are the factory inspectors of the government.

To imagine that the government is unaware of the problems of asbestosis or mesothelioma would perhaps be naive. After all, it is not asbestosis alone that is a notifiable disease. But N. L. Gadkari, former chief inspector of factories for Maharashtra, cynically dismisses government intentions. "The moment a disease becomes notifiable, it just disappears. Take, for example, the case of pyssinosis which is caused by inhalation of cotton fibres. This disease was made notifi-



Exposure in a user industry

able at the same time as asbestosis, but it has practically never been heard of despite the profusion of cotton textile mills in and around Bombay.

According to J. Kumar (formerly of the CII) who authored the CII study on health hazards from asbestos in Ahmedabad, "Because of the legal implications involved, no factory medical officer will ever identify asbestosis. Actually the main problem is mesothelioma which is definitely caused by crocidolite which the company studied was using." Perhaps it should be pointed out here

that manufacturers in the UK imposed a voluntary ban on the import of crocidolite in the early seventies.

In marked contrast to what is known in India, is the attitude of the Health and Safety Medical Board of the UK, which has clearly laid down that any worker suffering from even two of the symptoms—weight loss, loss of appetite, inspiratory crackles, reduced lung function, finger clubbing, or cough—must occur in a variety of respiratory and cardiovascular diseases, and has been exposed to asbestos at work must be certified as suffering from asbestosis. Compare this, for example, with the doctor's report on Rajagopal's case (see box). It seems patently dishonest to represent such vital facts and call asbestosis bronchitis or tuberculosis.

Trade unionists feel that the ESIC, which was set up by the government, has failed to do its duty. Bannerjee says that the workers of APMC undergo medical checkup once a year by the KEM hospital and not the KEM hospital at Andheri. However, he adds that when asbestosis is detected, the workers are retrenched by a management committee to wash its hands off the case.

When a worker is not covered by ESIC, contributions stop and he can avail of only treatment only for a period of six months. "Of course," says Bannerjee, "the ESIC provides for compensation of upto Rs 30,000 payable in instalments of Rs 500 per month when a worker leaves in service. But as soon as it is proved that he has the disease, more often than not he is retrenched. Further, what if he contracts the same disease, say two years after he leaves from service, neither the management nor the liability nor the ESIC.

UNIONS POWERLESS

The Occupational Health and Safety Administration (OSHA) of the US does physical examinations, chest X-ray, pulmonary function tests and the preparation of a complete medical history before the employee is taken up tests each year. One of the major factors is that the employees have access to medical data through their union physicians.

Sanzgiri points out that the health hazards are indicated, schedule XVII of the Factories Act, 1947 in the Factories Act, 1947. However, a major difference, however, is that the employee has no access to the medical data.

Kumar, even while refusing to confirm the reported retrenchment of Rajagopal at the factory following his study, does not say "The problem is that a worker is retrenched or retrenched and then

Substitutes — the search is on

Sweden and Holland have already imposed a ban on the use of asbestos. And even as manufacturers are faced with the possibility of more bans on the dreaded mineral, the race is on to find substitutes for asbestos in its many uses.

Asbestos consumption. The largest consumption of asbestos is accounted for in the manufacture of flat sheets, corrugated sheets, and pipes. Some headway has already been made in the search for substitutes in these uses of asbestos. Asbestos substitutes like Turner and Newall, along with Unitaka Kasei of Japan, has introduced an asbestos substitute called Mewlon. Mewlon is a high modulus polyvinyl alcohol fibre which can be used to produce non-combustible flat sheets. Hoechst A.G. the German giant has announced an acrylic based fibre called Dolan-10 which can be used in the making of many building materials, which now require asbestos cement. Pilkington Bros. has developed a glass corrugated sheet which can be made on existing asbestos machinery.

In 1979, when General Motors came to face the Environmental Protection Agency, they gave an undertaking to the effect that by 1983 all disc brakes in their cars would be asbestos free and by 1985 even drum brakes would be made of non-asbestos friction material. In addition, Roulands of Denmark has developed brake-linings made of a mixture of metallic and organic materials and Saab of Sweden has offered to con-

vert trake-linings on its older cars to the new material.

The days of asbestos as an essential ingredient in heat-retardant textiles also seem numbered. This is evident from the introduction of a number of asbestos free heat-retardant fibres in the market. Zetex manufactured by Newtux Industries, for example, is made from a silica based yarn with a treated finish. Zetex can withstand temperatures of upto 1800°F. Also in the same use bracket are Dupont's Nomex, a temperature-resistant nylon fibre and bleached Teflon fluoro-carbon organic fibres. Multitex, a special wool blend, by Multifabs is yet another substitute that is finding increasing acceptance in the West. Another braided fibre called GFO, which is made of graphite polytetrafluoroethylene and a high temperature lubricant, has been found to be the ideal substitute for asbestos in pump packing.

Just a matter of time. Although a successful alternative to asbestos has not been found for use in high pressure pipes, it would only be a matter of time before a suitable substitute is developed.

With suitable substitutes for asbestos being developed and an increased awareness amongst workers of the health hazards associated with it, there has been a gradual reduction in the manufacture and use of asbestos in the Western countries. In India, however, not only are there no signs of a reduction in its use, there seems to be an expansion in the manufacture of asbestos products.

Special Report

Types of asbestos

Asbestos is a common name given to a number of naturally occurring hydrated mineral silicates that possess a crystalline structure, are incombustible in air and separate into filaments. The four main types that are chemically different are: (1) chrysotile — white asbestos which occurs as fine silky flexible white fibres, (2) amosite — a straight brittle fibre, light grey to pale brown (3) crocidolite — blue asbestos, straight blue fibre, (4) anthophyllite — a brittle white fibre

refuses to cooperate when any study is made.

Trade union representatives argue that the attack on asbestos related diseases should really start at the preventive stages. Sanzgiri agrees that getting the 'manufacture and manipulation' of asbestos on to the Factory Rules in 1970, belated though it was represented a definite concern in this regard. But he alleges that all these carefully framed rules really exist only on paper. Bannerjee agrees with this point of view and goes on to state that if the Factory Rules were really enforced, perhaps ACMP would cease to exist.

Faced with this barrage of criticism, V. N. Kholkute, chief inspector of factories Maharashtra, underlines the need for managements to voluntarily exercise the required controls. He is of the view that "The role of the factory inspector is to ensure that the minimum safety precautions prescribed are adhered to." He also claims that the existing norms of having only one inspector per 150 factories means that they are severely understaffed. This shortage of manpower affects the efficiency of his department. He points out that "The inspector has to check everything from licences to health and safety measures, conduct enquiries in cases of accidents and attend courts too. Under such circumstances, to expect better compliance or existing rules would be naive.

But the factory inspector's reservations

on the factory inspectors, Sanzgiri makes a demand that, if accepted, could have phenomenal repercussions. Says Sanzgiri "The trade unions should be given the right to prosecute." This is the normal practice in countries like the US.

While to some extent the NIOH and CLI have been responsible for pointing to the hazards from asbestos, the most incriminating exposures get hidden under heaps of official explanations. CLI officials, for example, refuse to say a word on the subject on their study of the asbestos industry in India. Behind all the secrecy reportedly lies a recent terse reminder from the secretary, ministry of labour in New Delhi, to officials of the CLI and the like, that as per 'service rules,' they are not to speak to any member of the press or contribute articles about their work for publication in the mass media. What is the justification for this wilful suppression of information?

COMPLACENT UNIONS

Trade unionists, however, think that the CLI and NIOH can play an important role in creating a machinery to monitor asbestos dust levels and carry out systematic studies. They point to OSHA standards which clearly state that "affected employees or their representative shall be given reasonable opportunity to observe any monitoring required.... and (they) shall have access to the records thereof."

S. K. Chatterjee, former director, NIOH, even while agreeing broadly with the unionists, calls for "more responsible unionism and worker education in appreciating the need to adopt protective measures where managements have implemented them."

An interview with R. J. Mehta, president of the Engineering Mazdoor Sabha is enough to clarify what Chatterjee means. Mehta, whose union is the officially recognised union in the Asbestos Cement Co.'s (ACC and the Turner and Newall collaboration) Bombay plant, seems quite unaware of the potential dangers



Kholkute: bemoans staff shortage

of asbestos dust exposure. "Yes, we have had a few cases of TB," he says, adding in a cavalier fashion that "the wide open space at the Mulund plant ensure that dust exposure is maintained at low levels. Besides, most of the time the asbestos worker is an unskilled or semi-skilled worker. Where else will he get such good wages? It is medical that he will find another job."

This is exactly the "irresponsibility" of unions that prompts Gadkari to say "Workers should realise that an increase in allowances is not a substitute for health and safety measures. Unfortunately, unions always press for extra monetary benefits to compensate for hazardous work."

That even half an hour's exposure to certain types of asbestos dust can cause mesothelioma and other killing diseases is no longer disputed. The problem is who will compensate the victims and what is a fair compensation when the job can actually kill you? It is important to pin down responsibilities if further additions to the thousands of workers already suffering from asbestos related diseases are to be stopped.

There is talk of a new registration to enforce standards that the Asbestos Information Centre is working in along with the VIT and Metals Trading Corporation (MMTC) and Directorate General of Technical Development (DGT) and the ministry. The problem is that new legislations often get translated into large regulatory bureaucracies. The crucial question, however, is who is ready to send to jail corporate executives who knowingly continue to endanger the lives of workers (as may be done in the West)? However, for the present as the tightening of regulations is in place, the picture is one of complacent managements, inefficient government machinery, and often irresponsible unions.

Table 4:

Dust and fibre concentration in an asbestos textile factory in Ahmedabad

Site of Sampling	Total Dust (mg/m ³)	Respirable Dust (mg/m ³)	Particles (mppcf)	Fibres (ml.)
Yarn unpacking	29.09	11.63	57	367
Mixing	21.10	3.65	45	418
Spinning	9.73	2.10	86	225
Weaving	3.18	1.66	47	265
Rope Division	1.78	0.25	23	216

Source: NIOH Annual Report 1980

Notes: mg/m³ = milligrams per cubic metre
mppcf = million particles per cubic foot
ml = millilitre