A S B E S T O S B U L L E T I N

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Editor: C. Z. Carroll-Porczynski

C O N T E N T S

PART 1. ASBESTOS MINING

CANADA

124. CLINTON CREEK. Mineral Trade Notes 62, No. 1, January, 1966.

A recent Associated Press article appearing in the "Vancouver Province" (British Columbia) and datelined Anchorage, Alaska, reported that preliminary discussions have been held between officials of the Clinton Creek asbestos mining operation and the city of Valdez pertaining to the shipment of ore through the port of Valdez, Alaska.

Shipments of large quantities of Canadian asbestos from Valdez would be a major boost for this port city being rebuilt following the 1964 Alaska earthquake. Clinton Creek, regarded as one of the world's richest asbestos mines, is being brought into production at a site about 40 miles from Dawson, Yukon Territory. The mine is owned by the same Canadian interests as the Cassiar Asbestos Corp., Ltd., operating in British Columbia.

The Canadian Government announced it would contribute Can$2 million for a ferry across the Yukon River and approach roads to the property so the ore could be shipped through Dawson and Whitehorse, Yukon Territory, to Skagway, Alaska. Industry sources in the Yukon believe it is quite possible that the Clinton Creek ore will be routed to Valdez.
Source: Foreign Service Despatch A-26, Sept.14, 1965 - Vancouver.

125. PROMOTION AT CANADIAN JOHNS-MANVILLE. The Canadian Mining & Metallurgical Bulletin for November, 1965. p. 1227.

H. K. Conn, Exploration Manager of Canadian Johns-Manville Co.Ltd., Asbestos Fibre Division, has announced that R. C. Munro has been promoted Chief Geologist of the Company.

126. CANADIAN MINING OUTLOOK. Mining Journal, December 17, 1965. p. 450.

The Mining Association of Canada has noted that Canada's mining industry will have to solve labour shortage problems if it is to continue operating at its present capacity. A year-end report describes the industry's outlook for 1965 as very satisfactory, except in the fields of labour and gold mining. With regard to labour, the shortage of both skilled and unskilled workers is prevalent throughout the industry, and especially in the remoter areas.

127. THETFORD MINES. The Canadian Mining & Metallurgical Bulletin for November, 1965. p. 1140.

Eighty members braved the season's first severe snow storm and attended the October 28th meeting of the Thetford Mines Branch, C.I.M.

The speaker was Mr. Charles G. Davis, manager of construction, Kaiser-Gilpin Contractors, Black Lake, Quebec. He gave an excellent presentation and movie on the 6,000,000-cu-yd. earth stripping project his company is undertaking for Lake Asbestos of Quebec.

He discussed the major problems of handling the water and controlling the material, which actually tends to flow when disturbed. Added to other problems was the fact that production from Lake Asbestos' two adjoining pits cannot be disturbed. Kaiser-Gilpin are dredging this material with a 9W B.E. dragline with an 8-cu-yd. bucket on a 204-foot boom, then making up a water slurry and pumping to the tailings area. The system will handle 7,000 tons of solids per day.

128. CANADA'S NEWEST ASBESTOS PRODUCER - ADVOCATE MINES LTD. J.R.M. Hutcheson. The Canadian Mining & Metallurgical Bulletin for October, 1965. p. 1070.

Abstract: Advocate Mines Ltd. came into initial production on June 30, 1963, with an annual capacity in excess of 60,000 tons of high-quality chrysotile asbestos fibres, thus strengthening Canada's position in world production.

The history of this development is traced from discovery through initial exploration, financing, orebody delineation and evaluation, pilot-plant production and product evaluation, construction of the plant, construction of deep-sea shipping facilities, provision for a closed shipping season, and provision for the remoteness and for the lack of services, through to realization of full production capacity. The many unique aspects of the project are given special attention, particularly in the light of the first year of full-capacity operation.

The marketing of the products in a highly competitive world market is reviewed, with special emphasis on product evaluation, quality control and the shipping of products to consumers throughout the world.

AFRICA

129. SOUTH AFRICA.

Production of asbestos totalled 215,592 short tons in 1964, about 10,000 tons more than in 1963, but still below the 221,302 tons produced in 1962. Exports increased to 218,180 tons during 1964 as the foreign market, particularly for blue fiber, showed improvement in demand, if not in prices. (Exports by varieties and countries for 1963 and 1964 were published in MINERAL TRADE NOTES, August 1965.)

Republic of South Africa

Year and variety	Production, short tons	Exports	
		Short tons	Value, R f.o.b.
1963:			
Amosite	77,618	72,899	7,051,183
Chrysotile	28,928	16,109	1,506,680
Cape blue	87,965	85,535	11,738,177
Transvaal blue	11,205	9,309	1,145,941
Tremolite	28	9	375
Total	205,744	183,861	21,442,356
1964:			
Amosite	77,276	81,763	7,761,940
Chrysotile	35,921	28,573	2,103,864
Cape blue	92,091	97,135	12,770,140
Transvaal blue	10,304	10,709	1,235,129
Total	215,592	218,180	23,871,073
First quarter 1965:			
Amosite	18,734	14,165	1,366,573
Chrysotile	10,240	6,130	416,569
Cape blue	25,769	19,351	2,475,281
Transvaal blue	2,187	3,210	381,065
Total	56,930	42,856	4,639,488

Note: 1 South African rand equals US $1.40.

The Penge mine of Cape Asbestos Co., Ltd., continued into the first quarter of 1965 at about the same rate of recent years. The company was proceeding cautiously with its development and expansion program to increase annual productive capacity to 100,000 tons.

Msauli Asbestos Mining & Exploration Co., Ltd., the largest chrysotile producer, provided more than half of the 36,000-ton output in 1964 and 80 percent of the exports of this variety. Despite heavier sales, the company's profit margin decreased during the 18-month period ending in March 1965 because of low market prices.

Barberton Chrysotile Asbestos, Ltd., was selling from stocks during 1964; its Madelane mine was not reopened as contemplated. Because of wide fluctuations in the asbestos market and low prices, the company was extending its activities to include other mining ventures. A wholly owned subsidiary, Allied Quartzite (Pty.) Ltd., was formed to exploit quartzite in Namaqualand, and an interest was acquired in Allied Refractory Clays (Pty.) Ltd., which began producing clay from deposits near Bronkhorstspruit, east of Pretoria. The Barberton company changed its name to Allied Minerals, Ltd., to reflect its wider interests.

Griqualand Exploration & Finance Co., Ltd., a General Mining subsidiary, increased production of Cape blue asbestos (crocidolite) in the last half of 1964 in response to heavier demand. A new asbestos mine, on the Strelley farm, Kuruman area, will be opened to handle any additional demand and to replace existing mining units - Bretby, Greyling, Mount Vera, Riries, and Whiterock - some of which are nearing depletion.
Source: Foreign Service Despatch A-43, Aug. 5, 1965, Johannesburg; Republic of South Africa Department of Mines Quarterly Information Circular, Minerals, January-March 1965 - Pretoria.

130. GRIQUALAND EXPLORATION GETS ASBESTOS RIGHTS.
Mining Journal, December 24, 1965. p. 463.

Griqualand Exploration and Finance has acquired a controlling interest in substantial blue asbestos deposits in the Kuruman area of Cape Province, South Africa. Through its subsidiaries, G.E.F. is the leading producer of "Cape" blue asbestos.

131. TURNER & NEWALL'S ASBESTOS SUPPLIES.
Mining Journal, December 24, 1965. p. 463.

Turner & Newall have announced that the embargo in force on imports of Rhodesian asbestos into the U.K. would not affect the Company's manufacturing operations, at home or elsewhere, for a long period of time, during which they would expect to make adequate arrangements for alternative supplies from other sources.

132. NEWCOMER TO ASBESTOS MINING INDUSTRY.

About 16 miles east of Postmasburg, North-Western Cape, Republic of South Africa, valuable deposits of Cape Blue Asbestos (Crocidolite) are being exploited by Postmasburg Cape Blue Asbestos (Pty.) Limited, and its affiliated company, Groenwater Asbestos Mining Co. (Pty.) Limited. These companies control the mineral rights of several farms in this area, and a vigorous prospecting programme is going ahead to locate further deposits of asbestos. The Groenwater mill, operating since 1960, has a milling capacity of over 500 tons monthly.

A new mill is under construction on the Postmasburg Cape Blue Asbestos (Pty.) Limited property. This modern mill, capable of high production figures, will come into operation early in 1966. The mill is designed to produce different grades of Cape Blue Asbestos fibres. A sorting plant to enrich the ore-feed to the mill has been installed thus ensuring the recovery of high quality fibres.

Further to the North-East, in the Danielskuil area, a third mine has been proved by extensive drilling. Shaft-sinking has commenced and to date one shaft has intersected the fibre horizon.

The mines are supplied with electricity by the Electricity Supply Commission, and the national railway network of the Republic traverses both properties. The above two factors, power and transportation, on their doorstep, puts them right in the fore-front to meet world demand.

The forwarding, marketing and selling organisation for the above mining group is the affiliated company Valley Asbestos (Pty.) Limited, P. O. Box 9131, Johannesburg.

GREECE

133. GREEK MINING DEVELOPMENT. Mining Journal, January 28, 1966. p. 63.

The General Company for Mineral Exploration and Mining Development, S.A., founded by the Hellenic Industrial Development Bank of Greece has announced its programme of operations in the mining sector. Amongst others it was decided to prepare plans for bringing the Kozani asbestos mine and processing plant into production within two years, at an annual rate of 10,000 tons of asbestos fibres, valued at about $2 million.

U.S.S.R.

134. CHRYSOTILE-ASBESTOS FROM THE OKTYABRSKII ALKALINE MASSIF. V.V. Bairaker. Mineralog. Sb. L'vovsk. Un-ta, 1964, No. 18 (4), 447-450.

In the region of Mazurovo (Ukr.S.S.R.) chrysotile asbestos occurs in 1.5-2 cm. thick veins in serpentinite formation. The mineral consists of two varieties, viz. ortho- and climo-chrysotiles. Data are given of X-ray analysis and of thermal analysis.

135. ASBESTOS MINERALISATION IN CARBONATE FORMATIONS IN UPPER ZONE OF THE RIVERS VANGYRA AND B.PATOKA (SUBPOLAR URAL). B.A. Goldin. Geol. rudn. mestorozhd., 1965, 7, No.2, 114-116; Ref. Zhur Geol. 1965, 8170.

A peculiar feature of asbestos occurrences in the above region in that the same carbonate lenses there appear both amphibole and chrysotile asbestos. Fissures in the central part of the lens are usually filled with tremolite asbestos (vein thickness 1-2cm.), whereas fissures in the periphery are filled with chrysotile asbestos (vein thickness 0.2-0.5 cm.; fibre length 2-3 cm.).

136. PRELIMINARY DATA OF AMPHIBOLE ASBESTOS OCCURRENCES IN NORTH-WESTERN CAUCASUS. V.M. Ayanov and V.P. Gritskevich. Tr. ps geol. i polezn. iskopaemym Sev. Kavkaza, 1964, No.11, 150-157; Ref. Zhur Geol. 1965, 9166.

Actinolite asbestos mineralisation has been discovered in the region of the rivers B. and M. Laba (North-Western Caucasus). These occurrences are associated with basic magmatic formations rich in iron, magnesium and calcium.

137. PETROGRAPHIC CHARACTERISTICS OF SYENITES AND ZONAL DISPOSITION OF CONTACT-METAMORPHIC ASBESTOS DEPOSITS OF KUANCHEV. Kim Min Seb and Se Var Sen. Chichzhil gua chiri. 1964, No. 3, 1-11; Ref. Zhur Geol. 1965. 9167.

Asbestos veins of industrial importance occur in chrysotile-serpentine zones in Kuanchev (Korea).

138. INVESTIGATIONS ON SERPENTINE MINERALS BY THE METHOD OF ELECTRON MICRODIFFRACTION. V.A.Shitov and B.B. Zvyagin. Kristallografiya, 1965, 10, No. 6, 850-7.

PART 2. ASBESTOS CEMENT.

139. ASBESTOS SURFACED WITH PVF. British Plastics, December 1965, p. 755.

Turnall Colourbest asbestos cement fully compressed flat sheets, surfaced with Du Pont's Tedlar polyvinyl fluoride film, have been introduced by Turners Asbestos Cement Co. Ltd., Trafford Park, Manchester.

They are recommended for use as in-fill panels for curtain wall constructions and in situations where appearance, durability, resistance to weather and stains, and ease of cleaning are important factors. They are claimed to be equally suitable for indoor and outdoor use.

Maximum size sheets are 10 ft. by 4 ft. in 3/16 in, $\frac{1}{4}$ in, $\frac{3}{8}$ in and $\frac{1}{2}$ in. thicknesses.

140. CAPILLARY WATER-SATURATION OF ASBESTOS CEMENT AND ITS INFLUENCE ON REINFORCING PROPERTIES OF CHRYSOTILE ASBESTOS FIBRES. T.M. Berkovich et al. Tr. n.-i. in-t asbesta, slyudy, asbestotsementn. izdelii i proektir. str-va predpriyatii slyud. prom-sti, 1965, No. 19, 3-20; Ref. Zhur. Khim. 1965, 21 M 199.

The kinetres of the capillary water-saturation of steamed asbestos cement are characterized by two periods. In the first period, up to 90-92% saturation, a rapid filling of open capillaries takes place. In the second stage, closed capillaries are filled slowly. Capillary water-saturation of steamed asbestos cement increases the degree of the hydration of the cement during the final air hardening and improves the adherence of the cement to asbestos fibres.

141. RUSSIAN PATENT 177,315. PRODUCTION OF ASBESTOS CEMENT PIPES. I.Z. Volchek.

A process for a continuous production of asbestos cement pipes by extrusion comprises imparting a rotational movement to the mass being extruded, in the initial stage of the process, in order to effect orientation of the fibres in the mass.

142. INDIAN PATENT 94,228. CURING FIBROUS CEMENT ARTICLES. Johns-Manville Corp.

Fibrous cement articles are cured in an atmosphere of steam under pressure, while water is injected into the curing chamber.

143. BRITISH PATENT 1,009,273. FLUID-TIGHT COUPLING. R.C.M., Turin.

This invention relates to a fluid-tight pipe coupling of the type in which sealing of a smooth pipe end and an external sleeve surrounding with a clearance the pipe end portion is effected by an annular seal of resilient rubber material received by an annular groove in the inner periphery of the sleeve, pressed against the outer periphery of the abovementioned pipe end.

Figure 1 shows the ends of the two pipes connected by a sleeve coupling, and Figure 2 is an axial sectional view of two pipes connected by a socket joint.

In the drawings, 1, 2 denote the ends of two coaxial pipes fitted with a circumferential clearance into a sleeve 3, 4, 5 denote two annular seals of resilient material, preferably rubber, each rectangular in cross sectional shape and accommodated substantially without any clearance by annular grooves in the circumferential inner surface 6 of the sleeve 3. The inner edges 7, 8 of each seal are rounded to facilitate insertion of the pipes.

The resilient annular seals 4, 5 are of an outer diameter sustantially matching the diameter of the bottom of the grooves cut in the sleeve 3, and of a bore which is somewhat smaller, preferably by about 1 mm than the outer diameter of the ends of the pipes 1, 2.

The depth of the grooves cut in the sleeve equals about two thirds of the height of the rectangular cross section of the seals when the seal is not assembled. The ratio of the height to the length of the rectangular cross section of the seals amounts preferably to about 1 to 3.

In Figure 2 which, as mentioned above, shows a socket joint, the end 1 of a pipe is fitted into a socket 3^1 on the other pipe. The inner circumference of the latter is formed with an annular groove accommodating the seal 9 which issimilar to the above described seals 4, 5.

In order to assemble the coupling, the resilient annular seals are forced into the sleeve or socket, whereupon the end of the pipe or pipes to be coupled is inserted into the sleeve or socket.

The resulting coupling affords a fully tight seal against escape of pressure fluid, though the pressure may be high, from the piping, as well as against access of air to the pipe should an underpressure be set up in the latter.

Fig. 1

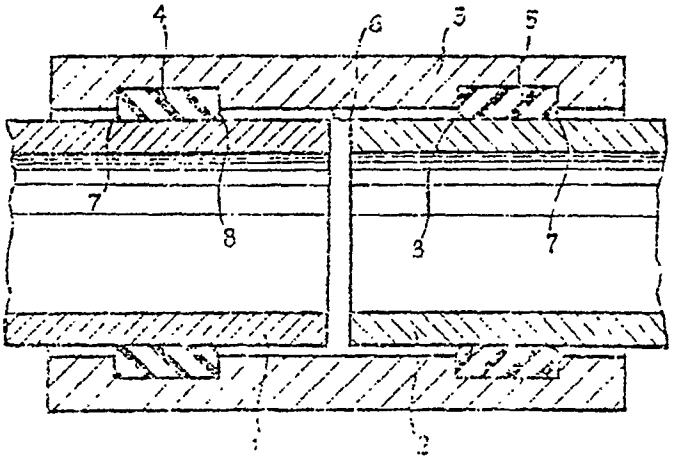
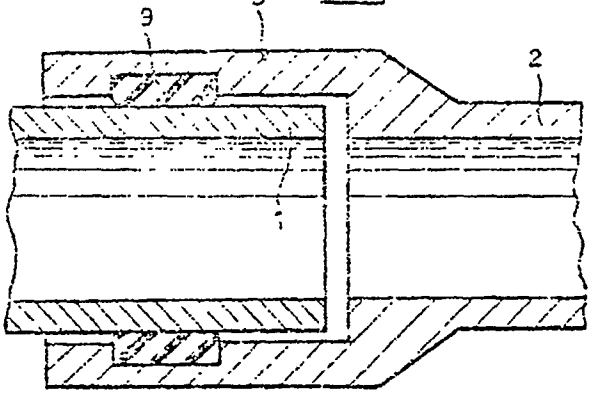


Fig. 2



144. BRITISH PATENT 1,011,035. IMPROVEMENTS RELATING TO PACKING OF COOLING TOWERS AND LIKE APPARATUS. Turners Asbestos Cement Company Limited.

The packings of water cooling towers, gas scrubbers and similar apparatus for bringing a liquid and a gas into intimate contact with each other are of two common kinds.

Figure 1 is a plan of the packing; Figure 2 is a vertical section through the packing as seen in the direction of the arrows on the line 2-2 in Figure 1: Figure 3 is a section through the packing taken at right angles to the section shown in Figure 2 as seen in the direction of the arrows on the line 3-3 in Figure 1 and to a larger scale; and, Figure 4 is a section similar to Figure 3 but to a still larger scale and showing a modification of the packing.

The packing shown in the drawings forms part of a water cooling tower and, as is usual in such towers, the packing is supported in blocks on a three dimensional grid of concrete beams 1 and 2 supported at their junctions on concrete columns 3. In this example the beams are arranged at 10 feet centre to centre in all three directions and they are 6 inches wide. The packing itself consists of a series of asbestos cement slats 4 arranged side by side in layers. Each of the slats is 10 feet long so that they abut each other on the centre lines of the beams.

As is shown most clearly in Figures 3 and 4 of the drawings, the slats in one layer are arranged exactly above the spaces between the slats in the layer below, and these slats in turn are arranged immediately above the spaces between the slats in the next layer further down and so on.

The slats 4 are made by cutting corrugated asbestos cement sheets 10 feet long into strips along the centre lines of the troughs of the corrugations.

In the packing shown in Figure 3, the slats 4 in the various layers are held apart from each other both vertically and horizontally by means of spacer pieces inserted between the layers and these spacer pieces consist of stacks of four corrugated strips 5. The corrugated strips 5 are made by cutting the same corrugated asbestos cement sheeting into strips at right angles to the lines of the crests and troughs and these strips are 6 inches wide and are arranged immediately above the beams 2. Each slat therefore has a 3 inch bearing on the strips 5 at each end. The slats 4 in one layer are arranged on alternate crests of the strips 5 and the slats 4 in the layer below are arranged on the intermediate crests.

In the modification shown in Figure 4, instead of having a stack of four strips 5 between each adjacent pair of layers of the slats 4, there are only two strips 6 of a similar form. The strips 6, instead of being stacked together as are the strips 5, are offset from each other by a distance equal to half the wave length of the corrugations and thus the troughs of one strip coincide with the crests of the strip below. At every alternate crest of one strip, a slat 4 is sandwiched between this crest and the trough above and spacer pieces 8 of the same width as the strips 6 are sandwiched between the intermediate crests and troughs. The crests and troughs are fixed together at intervals by rivets 7. The rivets 7 thus hold a whole series of layers of slats 4 and strips 6 together in a block. The spacer strips 6 between a number of layers of slats 4 form a kind of honeycomb structure.

A complete block of packing which is a 10 foot cube is held between the beams 1 and 2 and the corresponding beams 1 and 2 above. This block of packing is held in position on the grid of beams by a clamping arrangement which acts on the undersides of the beams and the top of the block of packing. These clamping devices, which are not shown, consist of nuts cast into the beams when these are formed and bolts which are screwed into the cast in nuts and can then be unscrewed so that they project further downwards from the underside of the beam and the amount by which they project can be adjusted by screwing them in or out of the nuts. The bolts are initially screwed in to provide a clearance above the block of packing and then shaped pieces which bear on the top surfaces of the top layer of slats or spacer strips are fitted and the bolts are then unscrewed so that they press downwards on the shaped pieces and hold the blocks firmly downwards on the supporting beams below.

145. INTENSIFICATION OF THE HYDRATION PROCESS FOR HARDENING ASBESTOS CEMENT ARTICLES. M.I.Strelkov & B.F.Fedoryakin. Stroit.Mat.1965, 11,No.12,24-26.

Intensification of the hardening of asbestos cement articles can be obtained by a preliminary "deep" hydration of the cement employed, effected by additional wet grinding. It has been shown that by applying preliminary deep hydration the previously employed hardening process comprising 16 hrs. air drying, 18 hrs. hydrothermal treatment and 15 hrs. final drying, can be replaced by immersing the articles, within one hour from its formation, in water for 3-4 hrs. The mechanical properties of the products thus obtained are excellent, their bending strength is more than 400 kg/cm.^{2} (100 more than in the case of articles made by conventional method). The theory and practical aspects of the process are discussed in detail.

Fig. 1.

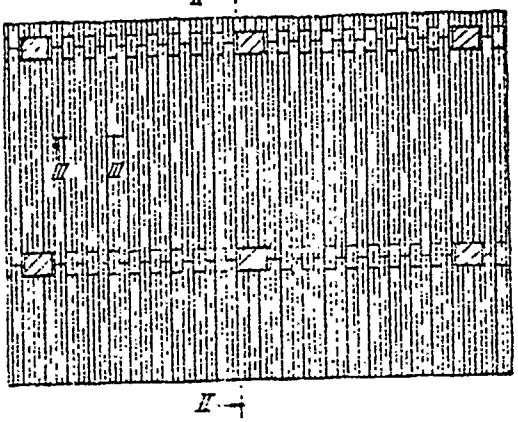


Fig. 2

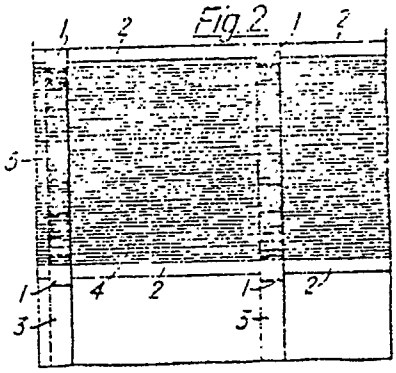
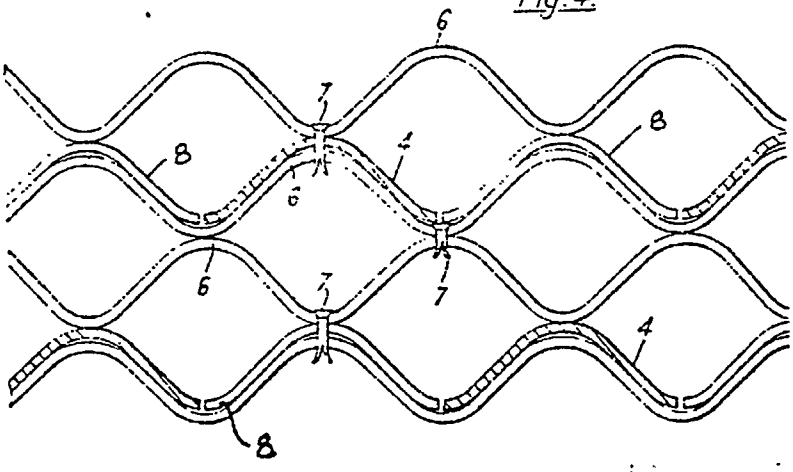


Fig. 3

Fig. 4



146. PANELS FROM ASBESTOS CEMENT AND PLASTIC MASSES FOR PIPELINE STATIONS. A.A. Oleinik. Stroit. Truboprovodov, 1965, No. 11, 11-13.

Panels suitable, for instance, for compressor or pump station buildings, comprise asbestos cement sheets with a layer of framed plastic in between them. Suitable plastics include phenolic resins. The asbestos cement sheets are connected together by means of profiled members also of asbestos cement. Asbestos cement and plastic material are joined by adhesive compound.

147. THE BEHAVIOUR OF ASBESTOS CEMENT PIPES IN THE SOIL. Intern. Water Supply Congr. and Exhibit. 1964, Stockholm. Corrosion Day Commun., s.a., No. 3, U 21 - U 28.

Results are described of years long observation of the service of asbestos cement pipes in many countries. It is concluded that only cement, in the asbestos cement compositions, is attacked in the soil, the main aggressor being the acidity of aerobic acid soils. Other types of soil are harmless. Corrosion can be prevented by means of thin coatings of bitumen or coal tar.

148. INVESTIGATION OF SUITABILITY OF INDIGENOUS ASBESTOS FOR THE MANUFACTURE OF ASBESTOS CEMENT PRODUCTS. N.V. Shah, H. Rao, V. Bhaskar and S.C. Jain, Trans. Indian Ceram. Soc., 1963, 22, No. 4, 109-115.

Data is given of the chemical composition, fibre length and physical properties of the asbestos from Indian deposits. Experiments are described on the production of asbestos cement test pieces containing 25% asbestos, 50% portland cement and 25% sand. Physico-mechanical properties of the products are described. The substitution of chrysotile asbestos by amphibole asbestos lowered the strength of the products.

149. GERMAN PATENT 1,203,443. ROOFING FROM CORRUGATED ASBESTOS CEMENT PLATES. Westhoff & Frie A.G.

A roofing of corrugated asbestos cement plates with a layer of insulating plates underneath comprises also another layer having a low resistance to vapour diffusion. Between these two layers there is a ventilation space connected with the inside of the building by means of holes in the vapour-permeable layer.

150. THE EFFECT OF SODIUM SILICATE ON THE FILTRATION RATE OF ASBESTOS FIBRES. E. Martinez. Canadian Mining & Metallurg. Bulletin 1964, 57, No.630, 1042-44.

Addition of sodium silicate to slurries containing chrysotile asbestos fibres improve their filterability. The best results have been obtained with a concentration of 2.5×10^{-3}M of sodium silicate per litre of the slurry. The rate of filtration was found to be inversely proportional to the zeta potential. Similar results were obtained when a lime-gypsum solution was used instead of water.

151. INDIAN PATENT 93,806. CORRUGATING FIBROUS CEMENT SHEETS. K.A. Oesterheld.

Sheets of e.g. asbestos cement are corrugated in an apparatus comprising a suction box with a rigid, corrugated perforated cover, auxiliary suction boxes on either side having flat perforated covers, a flexible layer having an air-permeable middle portion and air-impermeable margin portions, and tension members secured to the end portions.

152. FLAMMABILITY EXPERIMENTS ON ROOF LIGHTS MADE FROM CORRUGATED PLASTICS SHEET. E. Rumberg, W. Westhoff. Kunststoffe, 54, 4, April, 1964, p.206-10; German Plastics, 54, 4, April, 1964, p. 1-3; Rubber RAPRA Abstracts 43, 12, December, 1965, p. 898.

The spread of fire along the roof lights, i.e. areas of plastics sheet bounded on either side by asbestos/cement sheets, using a single source of fire from below, was studied. Materials used were PVC, polymethylmethacrylate, and polyesters.

153. JAPANESE PATENT 19029/65. PROCESS FOR IMPREGNATING CONCRETE OR ASBESTOS CEMENT PIPES WITH SYNTHETIC RESINS. K. Kiuchi.

This process comprises sealing either the inner or the outer surface of the pipe, removing the air and moisture from the non-sealed side and introducing a liquid resin from this side to effect penetration of the pipe wall. An apparatus suitable for this process is described.

154 BELGIAN PATENT 654,751. MANUFACTURED ARTICLES CONTAINING ASBESTOS FIBRES. Johns-Manville Corp.

Asbestos fibres to be incorporated in manufactured articles are treated with an agent modifying their properties towards water.

155. SURFACE TREATMENT OF ASBESTOS CEMENT PLATES. G. Frikell. Gummi-Asbest-Kunststoffe, 1965, 18, No. 1, 44-49.

Literature is reviewed relating to various types and applications of the surface treatment of asbestos cement plates, including inter alia, the following topics: coloured coatings and coloured surface layers; colour additives for asbestos cement compositions; coloured granulate covers; various surface treatment processes used to improve the resistance of asbestos cement against the action of external agents (chemical, mechanical, electrical, etc.); methods of the application of lacquers, bituminous coatings, glazes, silicon compounds, plastic coatings, etc; methods for improving electrical properties; mechanical methods of surface working up- covering with veneer; fireproof coatings.

156. GERMAN PATENT 1,198,271. PROCESS FOR INCREASING THE FIRE- AND HEAT-RESISTANCE OF STRUCTURAL PLATES. Badische Anilin-und Soda-Fabrik.

A process is described for providing structural plates with protective coatings, by applying, on the surfaces to be protected, a suspension comprising particles of hydrated alkali metal silicates dispersed in an alkali metal silicate solution, with addition of finely divided substances which transform, at elevated temperatures, the alkali metal silicates into a water-insoluble form. In an example, a composite plate is produced by applying onto a 6 m.m.-thick asbestos cement plate a 3.5 m.m.-thick layer of a composition comprising 220 parts of a water glass solution (40^{0}Be), 150 parts of powdered water glass and 40 parts of talc dried at 110^{0}C, and covering the said layer with another 6 m.m.-thick asbestos cement plate, glued by means of water glass.

157. SILICON-CONTAINING SURFACES. K. Weigel. Gummi-Asbest-Kunststoffe, 1965, 18, No. 2, 143-7.

Literature is reviewed concerning silicone-resin coatings, containing silicone-alkyl resins, vinyltriethoxy-silane polymer and the like. They have excellent corrosion resistance and show a good adherence to alkaline substrates, such as asbestos cement.

158. GERMAN PATENT 1,706,776. APPARATUS FOR FORMING AND COMPACTING SHEETS OF ASBESTOS CEMENT MASS TO PRODUCE PROFILED PLATES. G. Marchioli and G. Gremigni.

An apparatus is described for producing profiled asbestos cement plate. The apparatus comprises a tubular casing housing profiled upper and lower moulding members. The forming is effected using hydraulic or pneumatic pressure.

159. GERMAN PATENT 1,199,439. SEALING BETWEEN THE INGOT MOULD AND THE GROUND-PLATE DURING THE STEEL DEGASING PROCESS. August Thyssen-Hutte A.G.

A packing ring is placed in a groove in the ground-plate, and the mould rests on it. The packing ring is made of a heat-resistant, elastically deformable material such as aluminium, or asbestos-graphite cord.

PART 3. ASBESTOS TEXTILES.

160. EAST GERMAN PATENT 37,683. STUFFING BOX PACKINGS. H. Giesemann et al.

Stuffing box packings resistant to acids and alkalis and made of asbestos, or other fibres. In an example, a mixture was prepared, at 160°C, from 10 kg. ceresin, 2kg. paraffin, 2 kg. low molecular weight polybutadiene, 2 kg. low-pressure polyethylene, 3.45 kg. kaolin, 4.8 kg. barium sulphate and 0.025 kg. of colourant, and used for impregnation of asbestos yarns to form a packing cord of a diameter of 12 mm. The cord was immersed in various acids and alkalis and, after 28 days, retained good properties. It became somewhat harder upon treatment with 93% sulphuric acid and 63% nitric acid, but otherwise was unchanged.

161. POLYTETRAFLUOROETHYLENE DISPERSIONS. Rubber and Plastics Age, 1964, 45, No. 9, 1038.

Various applications of polytetrafluoroethylene (PTFE) dispersions include impregnation of asbestos fibres or fabrics. Dry asbestos has a positive charge so that PTFE adheres to its surface and practically does not penetrate inside. For a deeper penetration, the impregnation should be carried out before the fibrillation or weaving. PTFE can be forced inside asbestos fabrics by rolling. But in general PTFE is absorbed more readily by asbestos than by glass fibres.

162. INORGANIC FIBRE FABRICS. John Goodrich (Booz, Allen & Hamilton Inc., New York.) Product Eng. 36, October 11, 1965. p.132.

Discussion of glass quartz, mineral and ceramic fibres and their weaving into fabrics which can withstand extreme environments. Such fibre types as E, S, and C-type glass, silica, quartz, asbestos and ceramic are considered, together with basic weaves and finishes. Applications studied are those for thermal insulation, reinforced plastic, filtration, friction materials, and electrical insulation. Additional applications of the various inorganic fibre fabrics and their properties are tabulated, and textile firms and physical properties of the various fabrics are defined.

163. BRITISH PATENT 1,008,366-7. IMPROVEMENTS IN OR RELATING TO CURABLE MATERIALS. Victor Julian Copley-May.

A bush according to the present invention, is made up of laminations of a phenolic resin impregnated asbestos cloth constituting the shock-curable material and an asbestos cloth impregnated with phenolic resin containing colloidal graphite constituting the non-shock-curable material.

164. BRITISH PATENT 1,004,925. PROCESS FOR COLOURING TEXTILE MATERIALS AND FOILS. Farbwerke Hoechst Aktiengesellschaft.

Among materials which can be coloured asbestos fabric is mentioned.

PART 4. ASBESTOS FRICTION MATERIALS.

165. BRITISH PATENT 1,003,253. BEARING MATERIALS AND BEARINGS. The Glacier Metal Co. Ltd.

A bearing material incorporating polyvinylidene fluoride and a filler which comprises any one or more of bronze powder, cupric oxide, magnesium pyrophosphate, ammonium manganese arthophosphate, hydrogen manganese orthophosphate, iron manganese phosphate, graphite or asbestos fibres.

166. AUSTRALIAN PATENT 251,508. CERAMIC-LIKE FRICTION BODIES. Steatit-Magnesia A.G.

Friction bodies for brake linings, clutch facings etc. are produced by preparing a dry mixture consisting of 20-50 wt.% of asbestos or synthetic fibres, 20-50% of a ground glass having a low melting point, 10-40% of a metal powder and/or metal oxide powder, and 0-15% of pulverized graphite and/or sulphide or nitride, and baking the mixture in air at 1022-1202°F. The resulting product has a friction coefficient of 0.3 or more and is resistant to temperatures up to about 932°F. The product has also good mechanical strength and resistance to wear, particularly at the edges, and relatively good heat conductivity.

167. FRENCH PATENT 1,404,029. ELASTIC FRICTIONAL MATERIALS. E. Lepicard.

Elastic frictional materials, which can withstand prolonged friction, comprise short, flexible, but barely elastic fibres incorporated into an elastic matrix of natural or synthetic rubber. These fibres, which are intermeshed and glued into the mass, damp acoustic vibrations by internal friction, but do not prevent slow deformation of the elastic material thus produced. Suitable fibres include durable "Tergal", nylon, cotton, asbestos, etc.

168. BRAKE BONDING ADHESIVE. Plastics Design & Eng. Dec. 1965, p.27.

A nitrile-phenolic based solvent adhesive, designed to provide a secure bonding for brake and clutch lining, is now available from BTR Ind. Ltd. Marketed as Plastilock this bonding agent is intended for use on all types of transmission equipment incorporating friction materials. Linings are secured to brake shoes with a bond said to be five times stronger than is achieved with rivets.

169. BRITISH PATENT 998,238. BEARING MATERIALS. V.T.Z.A.

Claims a bearing material comprising a sulphur-containing layer of natural or synthetic rubber consolidated with a powdery or granular mixture of PTFE and lead.

170. FILLED PTFE AS A BEARING MATERIAL. J.R.F. Cornmell, Manager, Fluoro-carbons Division, Permali Ltd. Applied Plastics, January, 1965. p.30.

One of the photographs shows Permaflow PTFE/Asbestos valve plug as fitted to an "Andco" valve.

PART 5. REINFORCED PLASTICS.

171. BRITISH PATENT 1,009,783. ASBESTOS COMPOSITION AND PROCESS FOR PREPARATION. Raveg Industries Inc.

This invention relates to asbestos compositions. A composition according to the invention has important physical properties and is suitable for injection moulding, extrusion, transfer moulding, compression moulding, calendering, laminating and vacuum forming, wire coating and for thermoplastic tape for use at high temperatures.

172. FRENCH PATENT 1,403,673. PROCESS FOR IMPREGNATING EXPANDED PLASTICS. F.W.A. Kurz and S. Wikne.

An insulating material is produced by impregnating an open-pore plastic material, e.g. expanded polyurethane, polyvinyl, rubber foam, cellulosic sponge etc., with a slurry containing a mineral binder, such as gypsum, portland cement or any other type of cement, argillaceous substances and the like. Pulverulent or fibrous fillers, such as glass or metal powder, glass fibres, perlite, kieselguhr etc., may be added. The fire resistance of the produce can be improved by adding silicates, borates, phosphates etc. The product can also be mechanically reinforced with a steel network, glass fibres, asbestos fibres etc.

173. FRENCH PATENT 1,401,564. REINFORCED POLYMERS. Monsanto Co.

Polyamide polymers are reinforced with inorganic, granular or fibrous fillers using a coupling agent to ensure good adhesion between the polymeric matrix and the filler. Suitable coupling agents are amino-siloxane compounds, such as $NH_2(CH_2)_2\ NH(CH_2)_3\ Si(OR)_3$ or $NH_2(CH_2)_3\ Si(OR)_3$, where R is a hydrocarbon radical, acyl or alkoxycarbonyl. Suitable fillers, which may amount to 90-95% of the total weight of the composition, include wollastonite, mullite, glass fibres, asbestos, etc.

174. FRENCH PATENT 84,947 (ADDITION TO No.1,297,604). PRODUCTION OF POROUS MOULDED BODIES FROM THERMOPLASTIC MATERIALS. Badische Anilin-und Soda-Fabrik.

Mixtures wetted with water and consisting of a finely divided thermoplastic material and a filler are heated by means of a high frequency electric field in gas-permeable moulds to produce porous bodies. A suitable thermoplastic material is polystyrene. Fillers may be inorganic or organic fibres (glass fibres, asbestos, mineral wood, etc.).

175. EAST GERMAN PATENT 34,309. GLASS FIBRE LAMINATES. E. Hoermann.

Pores in the surface of a glass fibre laminate are filled with a liquid or pasty mixture containing a powdered material, such as pumice, barium sulphate or asbestos, and a binder, such as a natural resin, casein, dextrin or starch. Resin solutions without any filler can also be used.

176. GERMAN PATENT 1,208,490. USE OF OXYMETHYLINE POLYMERS IN COMPOSIT MATERIALS. Celanese Corp. of America.

Oxymethyline polymers with a content of 0.4-25 wt.% of oxyalkylene units with adjacent carbon atoms in the polymer chain are combined with metals, metal oxides, metal carbonates, metal silicates, metal sulphides, carbon, silica and/or boron, and optionally with glass fibres or asbestos fibres.

PART 6. BUILDING MATERIALS AND PIPES.

177. BRITISH PATENT 1,008,315. MULTI-PLY ROOFING MATERIAL. Aktiebolaget Svenska Icopalfabriken.

The invention relates to multi-ply moisture proof glass fibre base roofing sheets.

178. COMPOSITE MATERIAL. Engineering Materials & Design, January, 1966. p. 103.

For such building applications as external cladding, partitions, laboratory furniture, etc., and where in industry a flat, high density, rigid sheet with good machining is required, Marinite Ltd., are now offering their latest product called Scotstone. Manufactured from an inorganic mixture of synthetic calcium aluminium silicate binder and fillers reinforced with finely dispersed asbestos fibre, the material is incombustible, weather resistant and is unaffected by dilute acids and alkalis. Slate grey in colour, it is homogeneous in texture and steam cured to give uniform strength and dimensional stability. Sheet sizes are 10ft. by 4ft. with thicknesses of ½, ¾ and 1 in.

Marinite Ltd., North Row, London, W. 1.

179. NEW EXPANDED POLYSTYRENE UNDER-PURLIN ROOF INSULATION. British Plastics, January, 1966. p.34.

A new under-purlin insulation system using expanded polystyrene sheet has been introduced by Expanded Rubber & Plastics Ltd., a Bakelite Xylonite Company. Using the system, a corrugated asbestos roof is claimed to have its thermal efficiency increased to a U-value of about 0.16. The very low water vapour transmission of expanded polystyrene also minimizes problems associated with condensation in premises such as laundries, thus reducing maintenance costs on steel roof frames.

180. HIGH SPEED PIPE LAYING BY NEW METHOD. Applied Plastics, July, 1965. p. 26.

A world record for laying pipes, using a new method, is claimed by Yates Badger (Pipelines) Ltd.

In a recent contract carried out for Pocklington Rural District Council, the company laid 12,200 yards of 4 in. P.V.C. pipe at an average rate of 1,000 yards per day. This is thought to be a record for laying pumped sewage mains. The pipes were to link five outlying villages to a sewage treatment works in Market Weighton. The new method of pipe-laying is known as "Badger Ploughing."

181. "VINYLISED" THERMOPLASTIC FLOOR TILES. Marley Tile Co. Brit. Plast. 38, No.9, September 1965, p.580. RAPRA Abstracts, January, 1966.

Econoflex tiles are formulated from a blend of PVC, coumarone/indene resins, asbestos fibres, mineral fillers and pigments.

182. BRITISH PATENT 1,009,505. IMPROVEMENTS IN OR RELATING TO BUILDING PANELS AND LIKE UNITS. Sidney Radcliffe Potter.

This invention concerns a building panel comprising a prefabricated core of insulating and reinforcing material, such as hardboard, and a covering layer of asbestos cement on each side thereof secured thereto by attachment means such as wire mesh, prefixed to the core and outstanding therefrom before the application of asbestos cement to form the layer.

183. PREVENTION OF COLOURED IRON COMPOUNDS IN ASBESTOS-CONTAINING POLYVINYL CHLORIDE RESINS. Argus Chemical Corp.; A.C. Hecker, S. Cohen, M.W. Pollock. USP.3184428. RAPRA Abstracts, January 1966.

Floor tile and similar compounds based on asbestos-filled PVC and containing iron contamination are bleached by addition of an organic nitrogen compound of the type described, which is compatible, non-volatile and heat stable. Examples of the colour-protecting agent are dicyandiamide, melamine, guanidine, carbonate and stearoguanamine.

184. CANADIAN PATENT 658,356. STREET PAINT COMPOSITION. E. Baxter.

These paints which are especially suitable for marking street surfaces comprise 50-75 wt. % of a conventional leaded paint with the addition of 1-5% of a premix consisting of asbestos fibres, asphalt and naphtha, 1-5% of an asphalt thinner, 1-10% of silica powder, 6-25% of white lead pigment, 3-10% of shellac and 0-5% of zinc oxide. This product is quick-drying, water-repellant and easily seen.

185. FRENCH PATENT 85932 (Addn. to No. 1,383,005). ALUMINIUM-COATED CORRUGATED ASBESTOS BOARD. S. A. Francaise de Ferodo.

A composite structural material consists of several layers of corrugated asbestos board covered on the outside with a flat sheet of asbestos coated with a sheet of aluminium. The material is perforated, and the perforations form a decorative motif.

186. SWIMMING POOL PAINTS. L.R. Arnstein. Paint & Varnish Production, 54, No. 8, August 1964, p.29-30, 32, 34, 36. RAPRA Abstracts January 1966.

The use of styrene copolymers, polyurethane, epoxy, and chlorinated rubber paints for painting swimming pools is discussed. Some paint formulae are included.

187. BRITISH PATENT 1,016,144. IMPROVEMENTS IN OR RELATING TO FIRE RESISTANT WALL AND OTHER PANELLING. Shearwater Ltd.

According to the invention, a fire resistant panel comprises two sheets primarily of silica bonded asbestos fibres, said sheets being spaced apart by a peripheral frame composed of a substance or substances the same as that constituting said sheets thereby to form between said sheets a sealed cavity, and one or both of said sheets being provided with a decorative facing.

188. POLYISOBUTYLENE COMPOSITION. Johns-Manville Corp. B.P. 999,831 priority 26.3.62, 24.4.62. (USA) publ. 28.7.65. RAPRA Abstracts January 1966.

The composition contains 100 parts (by weight) polyisobutylene, 5 to 15 parts polyethylene or polypropylene or mixtures thereof, 0.2 to 4 parts lubricant, 20 to 75 parts ultraviolet light screening agent, and 295 to 400 parts inert filler. This composition is useful as an adhesive and roofing material.

189. PLASTICS IN FLOORING. Plastics Institute. Rubb.Plast.Age 46, 7, July 1965, p.813, 815 (Plastics Institute, Scottish Section, Edinburgh, March 1965). Plastics RAPRA Abstracts, Nov.1965.

Subjects covered included durability and acoustics of flooring, contract flooring, epoxy and PVC materials, and adhesives. Plastics in carpet manufacture were also discussed.

190. FRENCH PATENT 1,420,122. TERAZZO TILES. Johns-Manville Corp.

Improved terazzo tiles having a density of 1500-2640kg/m^3 are produced from (preferably): 15-30% hydrolic calcareous cement, 5-15% asbestos fibres and 50-80% of marble fragments (12.7 - 0.397 mm.) and granules (diameter ~400 microns).

191. BRITISH PATENT 1,004,033. WATER-RESISTANT, FIRE RETARDANT AGENTS. Deutsche Solvay-Werke Gesellschaft mit Beschrankter Haftung.

The present invention relates to fire-proofing agents, particularly for wooden materials.

PART 7. ASBESTOS JOINTING, PACKING, COATING ETC.

192. BETTER GASKET MATERIALS. M.W. Clark, Prod.Engng. 36, 18, 30th August, 1965, p.43-8. Rubbers RAPRA Abstracts 43, 12, December, 1965. p. 894.

The requirements of both gaskets and gasket materials are discussed. The suitability of cellulose-rubber and asbestos rubber are considered and standards for gaskets and methods of measuring gasket relaxation are given.

193. JAPANESE PATENT 24632/65. ADHESIVES. Nippon Synthetic Chem. Ind. Co.

Adhesive compositions contain fly ash dispersed in a solution or suspension of a vinyl resin. In an example adhesive material is prepared by mixing together (in weight parts): a 50% polyvinyl acetate solution in methanol 10, a similar 75% solution 35, fly ash 6, rosin 5, asbestos 20, ag. 85% ethanol 23, DBP 0.3 and acetic acid 0.7.

194. ACID-RESISTANT PACKING MATERIAL. Gummi-Asbest-Kunststoffe, 1966, 19, No.1, 54.

A new acid-resistant packing material, Fluorit S, has been developed in Germany. It consists of asbestos fibres bound with a fluorine-containing resin. It has excellent acid-resistance and can be exposed to temperatures of up to 280° C and pressures of up to 120 atm. without losing its elasticity and compressibility.

195. FRENCH PATENT 1,419,195. PACKING AND SEALING MATERIALS. British Belting & Asbestos Ltd.

These materials comprise a textile base of asbestos fibres, bonded with rubber, and a rubber core. The working surface is coated with an adhesive synthetic resin resistant to heat containing uniformly dispersed polytetrafluoroethylene.

196. FRENCH PATENT 1,419,073. COATINGS. Johns-Manville Corp.

Metal objects, such as steel tubes, are wrapped in a mineral fibre felt consisting of a mixture of asbestos fibres and glass fibres and impregnated with a thermosetting resin.

PART 8. ASBESTOS PAPER AND INSULATING MATERIALS.

197. BRITISH PATENT 1,012,621. THERMAL INSULATION. Union Carbide Corp.

A heat insulating construction suitable for insulating materials against temperatures above 900°F (480°C), including an evacuated space containing a composite insulation consisting of alternate layers of a fibrous material impeding the flow of heat by convection and heat reflective sheets impeding the flow of heat by radiation, characterized in that the fibrous material is composed of quartz, potassium titanate or a ceramic substance, the fibre diameter being less than 20 microns, and that the heat reflective sheets consist of copper, nickel or molybdenum.

198. CANADIAN PATENT 666,437. LAMINATED THERMAL INSULATION. Johns-Manville Corpn.

Laminates with a very low thermal conductivity and strong resistance to shock and erosion consists of alternate layers of (1) a resin-impregnated high-bulk asbestos paper comprising 97 wt.% of asbestos fibres and 3% of an organic resin binder, and (2) a self-sustaining mass formed from a mixture of an organic binder, 5-15% of asbestos fibre or other reinforcing fibres, and 75-95% of an aerogel and an opacifying material.

199. BRITISH PATENT 1,005,267. INSULATION PROCESS. Rex Asbestverke.

A process for the preparation of thermally insulated articles using asbestos, where in an aqueous dispersion comprising or consisting of asbestos fibres, containing a dispersing agent is applied to the articles to be insulated and is dried.

200. FRENCH PATENT 1,419,742. CATALYST CARRIER. S. A. Francaise du Ferodo.

A catalyst carrier consists of a fabric, paper, cardboard or a similar material impregnated with a solution of sodium silicate. Preferably the material consists of a roll of corrugated asbestos board.

201. BRITISH PATENT 1,010,361. IMPROVEMENTS IN OR RELATING TO ELECTRICAL INSULATION. The English Electric Co. Ltd.

According to this invention in one aspect an electrical insulating material comprises an asbestos fabric impregnated with a cement comprising a micaceous powder mixed with a solution of phosphoric acid.

202. BRITISH PATENT 1,002,653. IMPROVEMENTS IN OR RELATING TO SOUND DAMPING MATERIALS. Revertex Ltd.

This invention relates to sound damping pads capable of fusing readily on to metal surfaces when heated. The composition may contain:

Polyindene resin (melting point 74°C.)	3	parts by weight,
Bitumen (softening point 85°C.)	2	" " "
Siliceous filler	12.5	" " "
Fibrous asbestos powder	0.75	" " "
Channel black (carbon)	0.94	" " "
Stearine	0.5	" " "

203. JAPANESE PATENT 24036/65. HEAT-INSULATING AND NON-COMBUSTIBLE PRODUCTS. Japanite Co.

Heat-insulating boards or refractory mouldings are produced using fly ash or hydraulic slag as a main component, in admixture with natural fillers such as clay, volcanic ash or diatomaceous earth; porous materials such as expanded perlite, exfoliated vermiculite, sawdust and the like, and fibrous materials such as asbestos, glass fibres, straw, pulp, etc. To this mixture thermosetting resins and blowing agents are added, and phosphoric acid and water are admixed. Boards or other shapes are produced from the resulting mixture by moulding and heat treatment.

204. BRITISH PATENT 1,006,917. FIREPROOF HEAT-INSULATING MATERIALS. Foseco Intern. Ltd.

Heat insulating composition comprises:

Asbestos fibre	10 - 30	parts by weight
Exfoliated vermiculite	20 - 30	" "
Kieselguhr	25 - 50	" "
Sodium silicate binder	5 - 20	" "

PART 9. REFRACTORY FIBRES

205. PRODUCTION OF THREAD-LIKE CRYSTALS OF NaCl AND KCl FROM THE GAS PHASE. S.J. Gol'denberg and A.F. Churakov Fiz. Tverdogs Tela. 1966, 8, No. 1, 131 - 133.

Thread-like crystals of alkali metal chlorides obtained from the gas phase are superior to those produced from saturated solutions. The authors found that the formation of NaCl and KCl thread-like crystals from the gas phase occurs only under special conditions, particularly a high temperature gradient is required. Crystals of a length of 7 - 8 mm. and a diameter of 30 - 40 microns were obtained.

206. FLEXIBLE FIBRES OF BORON NITRIDE. Electronics (U.S.A.) 4.10.65, 196; Ceramic Industry, Nov. 1965, 34, 36.

Flexible fibres of boron nitride produced by Carborundum Company, which can be woven or combined with plastics, paper or laminates, can be utilized as an electrical insulation material or a heat-transfer medium, since boron nitride possesses an unusual combination of metal-like heat conductivity and ceramic-like electrical resistivity. The boron nitride fibres are now produced in lengths of from about 10 to 15 in. and in diameters of from 5 to 7 microns, have a tensile strength of 200,000 psi and a modulus of elasticity of 13 x 10^6 psi. Among other properties, they are resistant to abrasion and are chemically inert to most organic solvents, corrosive acids and bases, gaseous chlorine (up to 1300°F.), and molten silicon, copper, zinc and cryolite. Their maximum working temperature is 4500°F. in an oxidising atmosphere.

207. METAL FIBRE REINFORCED SOLDERING TAPE. H. Schwartzbart. Brit. Welding J., November 1965, 12(11), 538-542.

A description is given of the development and use of soldering tapes or sheeting consisting of a steel fibre sintered network impregnated with the solder. The steel fibre network holds the molten solder in the desired location. Mild steel has been joined satisfactorily by using sintered mild steel fibre mats impregnated with a 70 lead-30 tin solder. Several examples illustrate the methods of application of the tapes. The technique is highly versatile and may find extensive use in the motor industry.

208. COMPARISON OF THE STRENGTH OF LITHIUM FLUORIDE WHISKERS AND CRYSTAL FRAGMENTS ("CLEAVAGE WHISKERS"). A.A. Shpunt and V.Ya. Fridman. Fizika Tverdogo Tela, 1965, 7, No. 2, 649-650.

In an earlier paper (Fiz.Tverd.Tela, 1963, 5, 790-797, see also pp. 783-789), the authors investigated the strength of lithium fluoride crystal fragments ("cleavage whiskers"), which are filamentary splinters formed along the cleavage planes at cleavage steps of larger crystals. In the present work, the dependence of the strength of the "growth whiskers" of lithium fluoride on their cross-sectional dimensions was determined. The LiF whiskers were produced from solution by the Nadgornyi method. Their cross-sections were nearly square. The data obtained indicate that there is no difference, within the limits of experimental errors, between the strength of "cleavage whiskers" and "growth whiskers" of the same cross-sectional dimensions.

209. BRITISH PATENT 1,015,844. CERAMIC FIBRES AND METHOD OF MAKING THEM. Corning Glass Works.

A process for the production of fibres of beta-silicon carbide, which comprises the steps of providing a mixture of carbon and silica in a molar ratio of from 1:1 to 315:1 in a reaction chamber, simultaneously heating the reaction chamber to a temperature of from 1375°C to 1550°C., and evacuating the reaction chamber to a pressure of 300 microns of mercury or less, introducing an atmosphere of nitrogen and hydrogen into the chamber so that the initial pressure of nitrogen is 50-150 mm. and the combined initial pressure of nitrogen and hydrogen is 400-700 mm. maintaining the temperature for a time sufficient to attain the desired fibre formation, and thereafter cooling the fibres to room temperature.

210. FRENCH PATENT 1,376,008. INORGANIC FIBRES. Corning Glass Works.

Long fibres of alumina are produced by reacting in a closed system molten aluminium with a mixture of metal oxides having a more positive free energy of formation than Al_2O_3, in the presence of promoters, such as Cs_2O, KNO_3 or Rb_2CO_3. The best results have been obtained by using PbO, Cu_2O, Fe_3O_4 or CoO as metal oxides. The reaction is carried out at 700 - 1000°C. The fibres are formed at the interface of the two molten phases: aluminium (bottom) and metal oxides (top). The length of the fibres is usually up to about 20 mm, but occasionally reached 25 cm; the diameter is 0.01 - 1 micron. The strength of the fibres vary between 7,000 and 56,000 kg/cm^2.

211. WHISKERS MAKE REINFORCED PLASTICS BETTER THAN METALS. J.V. Milewski, J.J. Shyne. Proc.20th Anniversary Tech. Conference SPI, Reinforced Plastics Div. New York, 1965, Section 6-C, pp.10. Plastics RAPRA Abstracts, 20, 11, Nov. 1965. p.975.

A definition of whiskers (made of metals or sapphire), their properties and an explanation of their super strengths are given.

212. MECHANICAL PROPERTIES AND PRACTICAL APPLICATIONS OF WHISKERS. N. Franssen, H. Schladitz and H. Borchers. Metall. 1966, 20, No. 1, 22-30.

A review is given of the literature relating to elastic and plastic behaviour of various metallic and non-metallic whiskers, and to their practical applications especially in composite materials. 40 references.

213. REPRODUCIBILITY AND RELIABILITY OF SILICA FABRICS AND FIBRES MADE FROM LEACHED GLASS. John M. Ward (Haveg Industries Inc., Wilmington, Del.). Int. Aerospace Abstracts, Jan.1, 1966, Volume 6, No.1, 89.

Discussion of the reliability and reproducibility of the SIL-TEMP 84 fabric used as a reinforced filler in ablative components and as temperature-insulating material in the rocket and missile industries.

214. FRENCH PATENT 1,419,935. CARBON FILTERS. Thompson Fiber Glass Co.

Filters resistant to oxidation are produced from carbon fibres coated with a boron nitride layer firmly bonded to the carbon substrate.

215. BRITISH PATENT 1,003,040. IMPROVEMENTS IN METHOD FOR THE PREPARATION OF ALUMINA FIBRES. General Electric Co.

This invention pertains to the preparation of the alumina fibres by the vapour hydrolysis of a volatile alumina compound.

PART 10. MISCELLANEOUS.

216. BELGIAN PATENT 664,766. ROLLERS. Pittsburgh Plate Glass Co.

Rollers contain at least 30, by weight of asbestos fibres. Suitable asbestos varieties include orthophyllite amosite, tremolite, actinolite or mixtures thereof.

217. FRENCH PATENT 1,402,963. FIBROUS AIR FILTER-PURIFIER. Etabs. Schneider-Poelman.

Fibrous filters consisting of asbestos fibres coated with a chemically absorbing agent are used for purification of air by absorption of materials dispersed therein. The invention is particularly applicable to the removal of iodine from air by absorption by silver coatings formed on asbestos fibres using silver nitrate as a starting material.

218. BRITISH PATENT 1,012,298. MICROPOROUS MATERIALS AND PROCESS FOR MAKING THE SAME. Lloyd & Hillman Ltd.

This invention relates to microporous materials and more particularly to non-woven fibrous materials having ultrafine or micro pores and especially adapted for use as filter media, and to a process for preparing such materials.

PART 11. REVIEW OF JOURNALS.

"ASBESTOS" December 1965
807 Western Saving Fund Buildings, Philadelphia, Penn. 19107.

219. REVIEWING 1965, page 2.

220. MYRIL CLEMENT SHAW (1907-1965), page 20.

221. BUILDING, page 26.

222. ROCKSPAN CLAPBOARD, page 26. A longer and stronger asbestos siding, has been developed by Canadian Johns-Manville Company Limited.

223. MARKET CONDITIONS, page 28.

224. PRODUCTION, page 32.

225. IMPORTS & EXPORTS, page 34.

226. INDUSTRY NEWS, page 40.

"ASBESTOS" January 1966.

227. GREETINGS TO THE INDUSTRY, page 2. In general a better year, 1966, for asbestos mining is forecast by various executives in the asbestos mining industry.

228. NEWCOMER TO ASBESTOS MINING INDUSTRY, page 16. Valley Asbestos - blue fibre mines in South Africa.

229. PROFILE - MARIE-LOUIS TREPANIER, page 18.

230. LEAD-ASBESTOS PADS, page 22. Pads protect against vibration.

231. BUILDING, page 24.

232. MARKET CONDITIONS, page 28.

233. PRODUCTION, page 32.

234. IMPORTS & EXPORTS, page 34.

235. INDUSTRY NEWS, page 36.