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

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C O N T E N T S

PART 1. MINING.

CANADA

568 QUEBEC SHIPMENT. FIRST FIVE MONTHS. Canadian Min. Journal, Sept.,1962, Vol.83, No.9. p.135.

Shipments from the Quebec mines of asbestos during the first five months of 1962 were higher than for the same period last year, a report of the Quebec Department of Natural Resources shows. Comparative figures are as follows -

	May 1962	Five Months 1962	1961
Asbestos - tons	109,114	397,809	372,863.

569 PRELIMINARY REPORT ON BRISEBOIS LAKE AREA. D.F.Gold.Prelim Rep.Quebec Dep.Nat.Resour.Geol.Surv. Br.No.470 Quebec 1962

Asbestos occurrances have been noted in this area.

570 PRELIMINARY REPORT ON THE DENYS & FAGNANT LAKES AREA. NEW QUEBEC. R.J.L.Bourin. Prelim.Rep.Quebec Dep.Nat.Resour. Geol.Surv. Br.No.469. Quebec 1961.

Mineral Occurrences in this area include asbestos.

571 PRELIMINARY REPORT ON WATTES LAKE AREA, NEW QUEBEC. L. Gelinas. Prelim.Rep. Quebec Dept.Nat.Resour.Geol.Surv. Br.No.471. Quebec 1962.

An asbestos deposit more than 2000 ft. long and with a maximum outcrop width of 200 ft. is being developed by Murray Mining Corporation Ltd.

572 PRELIMINARY REPORT ON LAC MONTJOIE AREA, SHERBROOKE, RICHMOND & STANSTEAD COUNTIES. P.St.Julien, Prelim.Rep. Quebec Dep.Nat.Resour.Mineral Deposits Br.No.464, Quebec 1961. Mineral Occurances in this area include asbestos.

573 BRITISH COLOMBIA. The Mining Magazine. Oct.1962, Vol.107, No.4. p.226.

A writ has been filed on behalf of a syndicate seeking recognition of an option to purchase an 18-claim asbestos property in North Central British Colombia. The syndicate which includes Group Captain Doublas Bader, of London, England, and Messrs. Robert Delphin, Charles M. Munroe and Albert W. Taylor, all of Vancouver, claims that the option issued by Felix Letain, prospector, takes precedence over one held by Nicolet Asbestos Mines. Defendants in the action are Mr. Letain, Conwest Exploration, Cassiar Asbestos,

Kutcho Creek Asbestos and Nicolet Asbestos. Title to the claims has been the subject of lawsuits in British Columbia courts for some time. The Supreme Court of the Province granted ownership to Kutcho Creek Asbestos, but the decision was reversed by the Court of Appeal, after which the Supreme Court issued an order recognising the option of Nicolet Asbestos to purchase the property.

Conwest Exploration and its associates, Cassiar and Kutcho Creek have appealed the Court ruling to the Supreme Court of Canada, and until a decision is reached by Canada's highest court, no consideration can be given to the new unit of the Delphin-Bader syndicate. (Entire Abstract).

U.S.A.

574 CALIFORNIA ASBESTOS GOES TO MARKET. Paul O.Merritt.Mining Eng. Sept. 1962, 14, No.9, pp.57-60.

Short descriptions of two mines and mills at Copperopolis and Coalinga.

575 RESONANT VIBRATING SCREENS FOR THE MINING INDUSTRY. J.F. Sullivan. (Overstrom & Sons, Inc.) Mining Congr.J. Sept., 1962, 48, No.9, pp.26-30.

Detailed description of horizontal resonant screens. Jefferson Lake Asbestos Co., at Copperopolis is using them in their new mill.

U.S.S.R.

576 ON THE MINERALOGY OF SERPENTINES. N.V.Kornilov. Zap.Vses. Mineral.Obshch., 1961, 90, No.5, 535-548.

Fuchang serpentines represented by chrysotile asbestos, serpophite and antigorite are described. They belong to the serpentine-ferroserpentine class. Chrysotile asbestos occurs in the form of veins having a thickness of 0.2-0.8 cm, rarely 2.5 cm. It is rather brittle. Chemical composition, specific gravity and optical properties of chrysotile asbestos and the other serpentine minerals are given. Thermal analysis has shown that chrysotile asbestos gives endothermic peak at 660-750°C., and an exothermic peak at 810-830°C.

577 ON AN UNUSUAL VEIN OF TREMOLITE-ACTINOLITE IN THE "VOLTRI GROUP". L.N.Fenco. Ann.Museo.Civ.Stor.Natur, "Giacomo Doria", 1960, 71, 27-33.

.. vein of milky tremolite-actinolite, hydrothermally formed was found in formations of chlorite schists.

578 U.S.S.R. PATENT 144,008. MILLING OF ASBESTOS FIBRES. S.Ya. Kruglov, & D.M.Mnushkin. (Jan. 27, 1962).

AFRICA

579 FEDERATION OF RHODESIA & NYASALAND. Mineral Trade Notes, Oct. 1962, Vol.55, No.4, P.5.

Reportedly a large asbestos mine will be opened in the Filabusi district, Southern Rhodesia, by Pangani Asbestos Mines Ltd., a wholly owned subsidiary of Asbestos Investments Ltd., of Johannesburg, if arrangements for a R£ 1.5 million investment are approved by the Federal Rhodesian Government (1 Rhodesian pound equals about U.S.$ 2.80). A substantial ore reserve to a depth of 1,000 feet has been reported. Planned production from the Pangani Mine is 30,000 short tons of fiber a year.

580 BECHUANALAND. Mineral Trade Notes. Nov. 1962, Vol.55 No.5 p.3.

Production of chrysotile asbestos in 1961 increased to 1,924 short tons, 642 tons more than in 1960, the highest since 1958. Exports in 1961 totalled 1,852 tons valued at R.321,805. (1 S. African rand equals about U.S.$ 1.40)

Production and exports of asbestos - Bechuanaland 1958/61.

Year	Short tons. Production	Export
1958	2,265	1,734
1959	1,410	1,112
1960	1,282	1,849
1961	1,924	1,852

The only asbestos producer in Bechuanaland is the Loshaneng Mine about 8 miles west of Mange, south eastern Bechuanaland, operated by Marlime Chrysotile Asbestos Corp., Ltd., a subsidiary of Marble Lime & Associated Industries Ltd., of Johannesburg. Marlime has constructed a large modern mill which is currently handling ore containing 2% Arizona type fiber at the rate of 100,000 tons a year. Grade No.3 constitutes the bulk of production, but all grades from Crude to No.7 are produced. The fiber is transported by truck to the railway at Lobatsi and exported.

581 NEW LAYOUT OF ETHEL ASBESTOS NO.3 SHAFT. D.W.Chambers. Rhod.Min.Eng.Bulawayo 27, Jan.1962, 20-2.

The new layout of shaft No.3 at Ethel, and the working method and equipment are described. Illustrations are given.

582. THE DIFFERENT TYPES OF MINERALIZATION OF THE ANTI-ATLAS AREA, THEIR GEOLOGICAL FRAMEWORK AND PROSPECTING METHODS. G.Jouravsky & J.Destombes. Mines et Geol. No.13, Rabat'61.

The various types of mineralization occurring in the Anti-Atlas area include asbestos mineralization.

ASIA.

583 CHEMICAL AND X-RAY EXAMINATION OF AN ASBESTOS-LIKE MINERAL OCCURRING IN HINDUBAGH. Tahir Raze Khan et al. Pakistan J. Sci.& Industr.Res., 1960, 3, No.1, 36-39.

A fibrous asbestos-like mineral from Hindubagh has been found to consist of 50% brucite, $Mg(OH)_2$, 40% dolomite and at most 10% chrysotile asbestos. It may be conjectured that brucite was formed as a decomposition product of asbestos.

584 INDIAN PATENT 70,822. P.Dingharia Bhagawati. DISINTEGRATING ASBESTOS FIBRES.

585 ASBESTOS OUTPUT IN 1959/61. Min.Trade Notes, Sept., 1962.

	1959	1960	1961
	(in thousand tons).		
Canada	952.9	1,014.7	1,066.5
S. Africa	165.5	159.5	176.3
Rhodesia & Nyasaland	108.6	121.5	146.6
Italy	45.2	51.4	57.0
U.S.A.	41.2	41.0	47.9
France	21.2	25.5	28.0
Swaziland	22.5	29.1	27.8
Cyprus	13.1	21.2	20.0
Japan	12.4	15.5	17.1
Australia	16.2	14.2	15.2
Brazil	12.2	13.2	15.0
Finland	8.7	9.6	9.4
Bechuanaland	1.3	1.7	1.7
India	1.3	1.7	1.5
Total (estimated)	1,509.7	1,608.4	1,712.1

PART 2. ASBESTOS-CEMENT.

586 U.S. PATENT 3,031,365. PROCESS FOR PROVIDING ASBESTOS CEMENT PIPES WITH SOCKETS. G. Marchioli & G.Gremigni. (April 24th 1962).

A belled end is added to the pipe in the green state.

587. MODERNISATION OF SHEET MAKING MACHINES.

I.I. Berney, Cand. of Tech.Sc., S.A.Grazhdanakiy, K.M.Kinstler, A.G.Latsis, G.C. Zauerskhagen, Engineers.

The technical and economical aspects of the ashestos-cement industry are closely connected with the efficiency of the sheet making machines.

Considerable work has been carried out in the Soviet Union and also abroad to introduce new principles for the manufacture of asbestos-cement products. However, the existing type of sheet making machines will continue to be used for some time.

Therefore, technical improvements of the existing types of machines, parallel with further mechanization and automation with regard to their operation, are of great importance.

There has been little knowledge hitherto how to modernise the sheet making machines and this explains the slow technical progress in this direction during the last few years.

In this connection we wish to put forward some considerations and share our experience regarding the modernization of the sheet making machines at our Brotsen factory.

The existing asbestos-cement sheet making machines have two basic shortcomings ; most of the attempts aming at increasing the output of the machines substantially, result in the lowering of the quality of freshly formed and matured sheets. Another shortcoming is related to irregularities in the film thickness with resulting fluctuations in the product's strength.

Various measures applied to minimize the influence of the shortcomings mentioned above, like increased temperatures of the slurry, improved opening of asbestos, the employment of better felts, were already investigated. A further improvement can only be effected through the modification of the machines.

The first of the above mentioned shortcomings is closely connected with the low capacity of the machine's compressing part. The structure of the freshly made sheet is disturbed by the removal of water when only one compressing roller is used and high production rate had to be achieved. It has been found that with the installation of a second spring-loaded roller, the same amount of water can be removed in two steps with simultaneous reduction of pressure. A second compressing roller on the machines at the Brotsen factory was first installed in 1955, and later, in a number of other factories. Six years experience proved that with two compressing rollers the density and the strength of the sheets has increased considerably.

To help our investigations, the Magnitogorsk Metalurgical Institute designed and built a special pilot-plant machine with the mesh cylinders 1000mm in diameter and 300 mm wide in order to find out the optimum conditions for a machine running with speeds of 50 m/min and over. Experiments were carried out at felt speeds of 36, 47, 60 and 96 m/min.

It was established that at higher felt speeds it was also necessary to increase the capacity of the machines compressing part in order to eliminate the disruption of the sheet by the wrung out water. Speeds of 55-60 m/min. required two additional compressing rollers but at still higher speeds, three were necessary.

At an equal production rate the strength of the fresh and also of the matured sheet is improved in proportion to the felt speed. But at the same time it is necessary to increase the concentration of the slurry in the vats, so that the loss of cement with the backwaters does not increase accordingly. The concentration of the slurry in all vats must remain constant.

At felt speeds of over 70 m/min. the mesh cylinder draws into rotary movement certain layers of the slurry. In order to prevent it rising up to the main couch roller, it is necessary to instal an additional couch roller on the mesh cylinder.

As the optimum felt speed must be regarded as the one at which the filtration period lasts 1.5-2 sec., the slurry's concentration loss will not exceed the usual 12-14%.

The optimum felt speeds for mesh cylinders of 850-1200 mm. diameter depend on the slurry's concentration and lies between 51-60 m/min. At high felt speeds and increased capacity of the compressing part, there is no need for higher capacity vacuum pumps.

The technical personel at the Brotsen asbestos-cement factory, in collaboration with the employees of Magnitogorsk Metallurgical Institute, carried out the preparatory work and converted a three cylinder sheet making machine with mesh cylinders of 850 mm diameter to high speeds.

At first it was decided to increase the felt speed to 50 m/min. However, in order to increase the capacity of the compressing part, two additional rollers were installed. (Fig.1).

Great care was also required to select the springs of appropriate strength for the additional compressing rollers. It was decided to install on the first press-roller two springs with 5.5 turns, 56.2 kg/cm hardness and index 4. on the second - two springs with 4 turns, 95.5 kg/cm hardness and index 3.94.

The diameter of the driving press-roller of the sheet making machine was 270 mm. At increased loadings, this roller showed a tendency to bend. Average figures from a great number of experiments proved an increased moisture content in the middle of the wound sheet, and the specific gravity of the middle portion was also lower by 8.5% than at the edges.

The calculations showed that the loading of the roller at 41.1 kg/cm causes the bending in the middle up to 1.02 mm. To eliminate this undesirable bending, the personnel of the factory designed and made a reinforced welded construction of the driving roller of 450 mm. diameter (Fig 2.). The drive of the sheet-making machine consisted of a 14 KW electric motor with 735 R/min., a reduction gear with 22.98 ratio and two gears with a number of teeth 46:42. The driving roller makes 35 R/min.

At a felt speed of 50.4 rev/min. the rotary cutters did not work satisfactorily. To eliminate this a two speed drive was installed for the transporter. With this arrangement, it received the sheet from the forming roller with one speed and transfered it to the rotary cutters at a slower speed. By this means a satisfactory result was achieved. Also a vacuum box with four supporting rollers was installed, which were covered on the edges by bands moving together with the felt.

After completing these alterations, the machine was put in continuous operation a year ago.

The felt speed was set to 50.4 m/min. The concentration in the vats was as follows : 15.4% (first), 11.1% (second) and 6% (third). The temperature of the slurry was 28°; the film thickness 0.8-0.9mm. Pressure on the couch rollers was 2.5 kg/cm: and on the forming roller, 41 kg/cm. Vacuum was maintained at 220 mm Hg and the width of the vacuum-box's slot was 201 mm. A shift's production rate was increased by 24-25% compared with the previous output of sheet making machines taken as a whole in the industry.

Cracked sheets, a widely known form of reject in the asbestos-cement industry, were also experienced at the Brotsen factory, but after the conversion of the machine to a felt speed of 50.4 m/min. this feature disappeared completely. Cracks did not appear either during the corrugating process or in the hardening chamber. This has to be attributed to the greater strength of the freshly formed sheet, which as our experiment proved, increases with the reduced film thickness to a considerably higher degree than that of the matured product. The higher felt speeds help in raising the output without increasing, or rather reducing, the film thickness, and by this considerably improving the quality of the freshly formed sheet. This is one of the advantages of the high speed machine.

588 SOLID LIQUID REACTIONS IN PORTLAND CEMENT PASTES by W.C. Hansen. Materials Research and Standards. June 1962. Vol.2. No.6. p.490.

This paper reviews and analyses some of the literature on reactions of cement minerals with water. The evidence from this literature points to the conclusion that the cement minerals do not dissolve as such but react as solids with water to form hydrated products which may then dissolve and recrystallize.

589 SULFATE RESISTANCE OF ASBESTOS-CEMENT PIPE by P.W.Manson and L.R.Blair. Materials Research and Standards. Oct.1962, Vol.2. No.10, p.828.

Laboratory and Field exposure tests of asbestos-cement pipe indicate that: 1) the presence of free lime in asbestos-cement materials has a direct relationship to the durability of such products when exposed to sulfate environments. 2) the sulfate resistance is greatly improved by reducing the amount of free lime. 3) autoclave curing of autoclave formulation (including silica) greatly reduces the percent of free lime, and 4) with the combination of autoclave curing and autoclave formulation, the type I (regular) cement has a free lime content and sulfate resistance about equal to that of type V (sulfate resistant) cement.

590 ON THE TECHNOLOGICAL FACTORS OF THE INTENSIFICATION OF THE MANUFACTURE OF ASBESTOS CEMENT SHEET PRODUCTS. E.N. Kitaev. Stroit.Mat.1962, 8, No.9, 8-12.

The most important technological factors influencing the manufacture of asbestos cement sheets are: the temperature of the asbestos cement mass, the thickness of the sheet, the degree of densification, the rate of formation and the conditions of hardening. All these factors are discussed in detail using, as an example, the production of asbestos cement sheets containing 14% asbestos and 86% cement (alite, belite or cement with an increased content of tricalcium aluminate). Tables and diagrams showing the influence of these factors and of other working conditions on the properties of the products and the degree of utilization of machines are given.

591 SOUTH AFRICAN PATENT 62/2076. COLOURED ASBESTOS CEMENT MATERIALS. S.A. Eternit.

Coloured asbestos such as crocidolite or amosite, having the property of preventing the development of moss, lichen and fungi, is incorporated in the surface layer of asbestos cement plates and the like. The inner material preferably contains white asbestos.

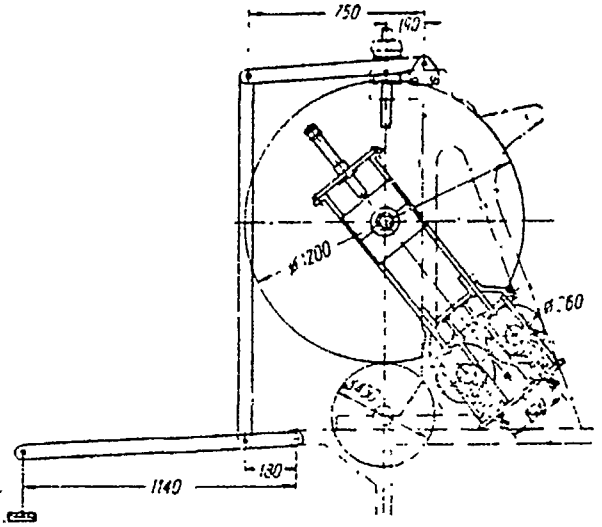
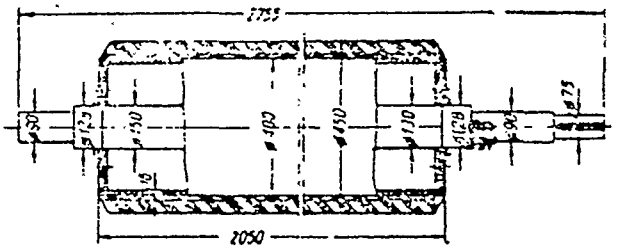


Fig.1 Additional compressing rollers on the forming roller.



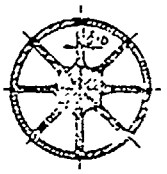


Fig.2.
Driving roller of reinforced construction

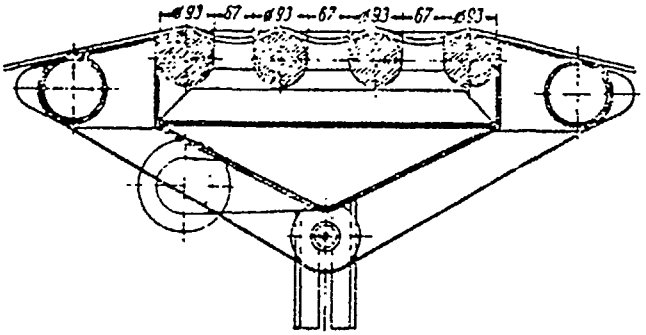


Fig.3. Vacuum Box.

592 ASBESTOS CEMENT PIPES FOR WATER MAINS ARE PRODUCED IN POLAND. J. Budaszewski. Graz. Woda i Technike Sanitarna, 1962, 36, No.2. 78-80.

A new asbestos cement factory in Szczucin (Poland) is described. The production of asbestos cement pipes (using portland cement "mark 350") is fully mechanised. The capacity of the plant will soon reach 1000 km. of pipes per year. Pipes of a diameter of up to 500 mm. are produced (with working pressures of 5 and 10 atm): dimensions and weights are tabulated. Owing to the very smooth internal surfaces asbestos cement pipes are characterised by much lower friction losses (pressure drop) than cast iron and steel pipes.

593 AUTOMATIC ASBESTOS-FEEDING LINE. S.G. Kutikov. Strcit. Mat.1962 8 No.8, 24-25.

An automatic line for conveying asbestos from stores to a plant producing asbestos cement is described. The line comprises, inter alia, a feed bin, a two-stage screw conveyor, a vertical bucket elevator, a measuring hopper and a self-propelled hopper car with a screw device for unloading asbestos. The line is electrically controlled. One operator is needed for an asbestos cement plant comprising three hollanders (previously, this work required 8 men).

594 A NEW FACTORY FOR THE PRODUCTION OF ASBESTOS CEMENT ARTICLES IN BAVARIA. Gummi-Asbest-Kunststoffe, 1962, 15, No.9. 876

A new factory was erected at Dettelbach am Main by Bayerische Fulgurit-Werke G.m.b.H, (owned by K.A. Oesterheld) at a cost of 15 mill.DM. Apart from the known Fulgurit products manufactured at present, it is planned to produce in the future high pressure asbestos-cement pipes for water mains.

595 TEMPORARY TECHNICAL INSTRUCTIONS FOR INSTALLING GAS MAINS OF ASBESTOS-CEMENT PIPES WITH A PRESSURE UP TO 5KG/CM^2 OUTSIDE OF CITIES, INHABITED PLACES, AND INDUSTRIAL ENTERPRISES. U.S.S.R. Gosudarstvennyi komitet pe delam stroitel'stva. Moskva, Gos. izd-vo lit-ry po stroit., arkhit. i stroit. materialam, 1961, 22p.

596 SEALING THE WALLS OF ASBESTOS-CEMENT PIPES WITH HIGH-POLYMER COMPOUNDS. V.S. Logincv, E.A. Kashkovskaia & V.V.Tarkhanov. Stroi. trubcprov. (Pipeline Construct.) Febr.1962, 7, No.2 pp. 9-10.

597 "SINDANYO" A VERSATILE MATERIAL. Gummi-Asbest-Kunststoffe. 1962, 15, No.10, 956 and 958.

Turner's Asbestos Cement Co.Ltd., Manchester, has recently launched onto the market a series of asbestos-based electrical and thermal insulating materials under the common trade name "Sindanyo". The basic type is "Sindanyo CS 51" which is a mixture of selected and preliminarily processed chrysotile fibres and cement; plates of this material are slightly polished. (Mechanical, thermal and electrical properties of "Sindanyo CS51" are tabulated). A number of "Sindanyo" modifications include materials coated with synthetic resins, chlorinated rubber, oils, lacquers, etc., or impregnated with oils or silicon resins. Properties and applications of these modifications are also described.

598 BEHAVIOUR OF PIPES BURIED IN EXPANSIVE CLAYS. G.Kassiff and J.G. Zeitlen. Am. Soc. Civil Eng.Proc.Apr.1962, 88. (SM 2, No.3103) pp.133-148.

Asbestos cement pipes were tested using vibrating wire strain guages to determine the stresses caused by soil movements due to seasonal moisture changes and irrigation.

599 HEATING PANELS MADE OF ASBESTOS CEMENT. V.M. Gusev and L.D. Pashkov. Vod. i san. tekh. (Water Supply and Sanit. Eng.) Nov. 1961, No.11, pp.3-5

600 BRITISH PATENT 898,420. IMPROVEMENTS IN PRODUCTION OF ASBESTOS-CEMENT WEBS. F. Hatschek, R. Hatschek and Hans Czervenka.

A plurality of rotary agitators are employed for counteracting preferential alignement of fibres on the web-forming cylinder.

601 STRENGTH & FROST-RESISTANCE OF ASBESTOS-CEMENT IN RELATION TO WEIGHT BY VOLUME. I.I.Bernei. Stroi.mat.(Bldg.Materials) Febr. 1962, 8, No.2. pp.6-9.

602 GOOD BONDING OF COPPER METALS ASBESTOS-CEMENT PANELS REPORTED. Am.Metal Market. Sept.25,1962, 69, No.185, p.13.

Anaconda American Brass Co. reports the results of a three year exposure test of laminates of copper or its alloys and asbestos cement. The material is intended for use as spandrels and exterior wall panels.

603 BRITISH PATENT 908,125. PROCESS FOR MANUFACTURING ASBESTOS-CEMENT SLABS.

According to one aspect of the invention there is provided a process for manufacturing asbestos-cement slabs, wherein an asbestos-cement web is formed by the super-imposition of a plurality of asbestos-cement layers between at least one pair of forming bands, and by pressure between at least one pair of press rolls the formed web being disengaged from all said forming bands, immediately after passage through said pair or the first said pair of press rolls, and wherein individual slabs of predetermined lengths are cut from the web.

PART 3. ASBESTOS TEXTILES.

604 GERMAN PATENT 1,137,956. PROTECTIVE CLOTHING AGAINST NUCLEAR AND HEAT RADIATION. R. Claassen.

A web for a clothing protecting against nuclear and heat radiation consists of threads having a chrysotile-asbestos core enveloped, in turn, with a graphite layer (0.5 mm thick), lead sheet (0.5 mm), another graphite layer (0.3-0.5 mm) and a cadmium layer (0.1 mm).

605 BRITISH PATENT 907,484. IMPROVEMENTS IN AND RELATING TO ELECTROLYTIC CELLS. Columbia-Southern Chemical Corpn.

According to the present invention there is provided an electrolytic cell containing an anode cathode with a diaphragm therebetween, said diaphragm comprising asbestos cloth impregnated with a halogenated drying oil and/or a terpolymer of divinyl benzene, styrene and maleic anhydride.
Two convenient methods have been used. According to one method, the oil is prehalogenated before contact with the asbestos. According to another method, the asbestos is impregnated with oil and thereafter the oil is reacted with the liquid chlorine in situ before or after allowing the oil to dry and/or to solidify.

606 FRENCH PATENT 78,581 (Addn. to 1,033,006) ASBESTOS FABRICS. M. E. Simon.

Asbestos fabrics suitable for the production of clothings, are coated, on one or both surfaces, with a synthetic resin compo - sition comprising asbestos powder and aluminium in the form of dust, metallic pigment, foils and the like.

PART 4. ASBESTOS FRICTION MATERIALS.

607 THE MANUFACTURE OF BRAKE LININGS, by W.G.Carroll, British Plastics, August, 1962. p.414.

After sketching the development and production of woven asbestos brake linings, the author discusses moulded brake linings in detail and describes types of filler and binder used. The wet mix dough process, by which extruded linings, wire-back linings and sheeter linings are produced, is considered as is the dry mix process for fully moulded and post-formed linings.

608 BRITISH PATENT 907,836. FRICTION ELEMENTS FOR BRAKES OR CLUTCHES. Raybestos-Manhattan Inc.

The composition may contain cellulosic fibre of alternatively the blend of organic and inorganic fibres. One of the quoted compositions is as follows -

Fibres		
Sulfite Pulp	29.51)	39.19%
Asbestos Fibre	9.68)	
Binder		
Phenol Resin	25.26)	
Liquid Cardolite Resin	7.64)	48.16%
Latex Rubber Solids	11.55)	
Sulphur	3.71)	
Fillers		
Flake Graphite	4.30)	
100-mesh Lead Powder	5.21)	12.65%
Talc	3.14)	
		100.00%

609 A REVIEW OF PLASTIC BEARINGS. P. H. Pinchbeck (United Coke & Chemical Co., Ltd.) Wear - March/April, Vol.5, No.2, p.85-113.

The article covers the theory of friction, wear and lubrication and its application to plastics, design factors with polymer bearings, radiation effects on plastics and application of plastic bearings.

610 RESEARCH INTO BRAKE USAGE IN PASSENGER CARS by A.E.Livsey & others. Institute of Mech. Engs, Automobile Div., proceedings 1960/61. No.7, pp.211-220. Discussion pp.231-253.

A study is made of the brake usage of a number of passenger cars with different drivers over four widely varying routes which are representative of conditions under which brake usage is likely to be severe.

611 A TEST SCHEDULE FOR PASSENGER CAR BRAKES by A.E.Livsey & others. Inst.of Mech.Engs., Automobile Div. Proceedings 1960/61. No.7, pp.221-230. Discussion pp.231-253.

Various forms of brake-fade test are used in the motor industry and it is suggested that a standardized test schedule is required, based on contemporary operating conditions.

612 BRITISH PATENT 906,358. FRICTION BODIES. Steatit-Magnesia Aktiengesellschaft.

This patent covers a method of manufacturing ceramic friction bodies for brakes or couplings comprising plastifying a dry mixture including 20 to 50 parts by weight of natural or synthetic inorganic fibres, 20 to 50 parts by weight of glass frit having a low melting temperature, 10 to 40 parts by weight of a metal powder mixture and/or a metal oxide powder mixture and 0-15 parts by weight of powdered graphite and/or a powdered sulphide or nitride, and pressing the plastified mixture onto shaped bodies at a pressure of the order of 1000 atmospheres, the glass frit acting to bind the mixture together in place of an additional binding agent. The plastified mixture is pressed at a temperature in the range of 550°C to 650°C.

Example of Composition -

35	parts	by	weight	asbestos fibres
30	"	"	"	glass frit
20	"	"	"	sintered iron powder
13	"	"	"	bronze powder
2	"	"	"	molybdenum sulphide.

613 JAPANESE PATENT 11428/62. BRAKE MATERIAL. Nitto Boseki Co.

Brake material is prepared by mixing iron powder (35-55%) lead powder (15-25%) phenol resin (10-14%) Cashew resin or an alkyl phenol formaldehyde resin (8-12%) asbestos powder (5-10%) and graphite (1-5%). The mixture is moulded under pressure with heating at 140-160°C. The product has a high coefficient of friction (0.3) which is only slightly reduced at elevated temperatures. The abrasion of the product is low (only about one third of the abrasion of cast iron).

PART 5. ASBESTOS REINFORCED PLASTICS.

614 STRUCTURAL PLASTICS FOR CHEMICAL PLANTS. B.N. Reavell. Australian Plastics & Rubber J., July, 1962, pp.42-46.

A wide range of equipment made from Keebush and Haveg asbestos based materials is described and a table is given showing the resistance of these materials to chemical attack.

615 NONWOVEN FIBRES IN REINFORCED PLASTICS. D.V.Rosato. (Indust. & Eng. Chemistry). August, 1962, 54, 30-37.

The manufacture and properties of plastics reinforced with nonwoven fibres are described. The fibres used in these compositions include, inter alia, asbestos fibres, whiskers of metals and ceramics, graphite and pyrofiber. Nonwoven asbestos fibres produce higher strength reinforced plastics than the woven fabric reinforcements because of the fineness and wettability of asbestos fibres. Whiskers which show promise in the field are refractory oxides of Al and Si and some metals (especially iron and copper); silicon whiskers 1 micron in diameter produce strength of 550,000 psi. the tensile strength of iron whiskers at room temperature is reported as high as 2 million psi. with whiskers not exceeding 1.5 microns in diameter. However, very little progress has been made, as yet, in developing whisker-reinforced laminate. Sheets of nonwoven fibres can be made by both textile and paper processes.

616 THE WRAPPING PROCESS FOR REINFORCED SYNTHETIC RESINS (with Asbestos). G.J.Spies, Plastica (Delft), 1962, 15, No.2, 66-73.

Although most of the sandwich-type reinforced resin compositions contain glass fibres, other fibres such as quartz fibres or asbestos can be used in synthetic resin laminates. Asbestos may be used on phenol, polyester or silicone resins. Theoretical and practical aspects of the production of such articles are discussed, using as an example the nozzle jackets of Atlas rockets.

617 BRITISH PATENT 908,494. HIGH TEMPERATURE RESISTANT MATERIALS & METHOD OF MANUFACTURE THEREOF.

In accordance with this invention an asbestos fibre mat was impregnated with a phenol-formaldehyde resin solution containing :-

Resin Solution (65% solids, 35% solvent)	31.8 lbs
Solvent (isopropyl alcohol)	25.1
Hexamethylene tetramine	1.0
Water	1.3
Graphite Powder	8.0
Boron powder (amorphous, about 1 micron)	15.8

This was cured at 320°F. It was then fired at 2000°F. for one-half hour. On examination, the product was found to have retained its shape and structure, although it turned black and had become slightly warped. However, it could be handled without breaking or disintegrating. In the absence of the boron, when treated otherwise in the same manner, the product crumbled and disintegrated.

618 ASBESTOS-REINFORCED PLASTICS. J.J.Colao. Mod.Plastics, Sept., 1962, 40, No.1A (encyclopedia issue), pp.676-677.

Uses for these materials are described briefly.

PART 6. ASBESTOS PACKING, SEALING & COATING COMPOSITIONS.

619 GETTING THE MOST OUT OF GASKETS. E.H.Stubenrauch. Chem. Eng., Sept. 3, 1962 69, No.18, pp.123-128.

A survey article on gasket materials and their applications.

620 SELECT & APPLY GASKETS EFFECTIVELY. J.J.Whalen. Chem.Eng. Oct.1, 1962. 69, No.20, pp.83-88.

A general article with the emphasis on installation bolt force and seating stress.

621 PACKING MATERIALS RESIST OIL, GASOLINE. ASBESTOS-GRAPHITE MOULDING. Mat. in Design Eng., Oct.,1962, 56, No.4, p.202.

Plasbestos, a mixture of asbestos fibres, TFE resin and graphite, forms its own gasket on packing and will not harden in service. The compound is marketed by Croton Compound Corp., 1133 Broadway New York 10. The compound has an upper pressure and temperature limit of 200 psi and 500°F. For temperatures above 500°F, the compound is supplied without TFE to take temperatures up to 800°F. The material is impervious to steam, hot and cold water, and oil, and resists most acids.

622 ASBESTOS-NEOPRENE SHEET. Mat. in Design Eng., Oct., 1962, 56, No.4, p.204.

Keasby & Mattison, U.S.A., have introduced a new asbestos-neoprene rubber sheet packing material that is available in three densities.

623 NEW CARAMICS ADHESIVES. W. P. Robins. Produce Engineering, 3 September, 1962, p.75-7.

A new range of inorganic adhesives for use where temperatures exceed 400°F has been introduced and under certain conditions are claimed to be competitive with brazing. One such application is in the fabrication of high-temperature honeycomb.

624 EXTREME SERVICE GASKET MATERIAL. Eng.Mats.& Design. May, 1962, p.321.

Victorcor 200 Gasket material, developed in the U.S. is now being made under licence in Great Britain by Cooper's Mechanical Joints Ltd., and is designated G.130. It has been developed to meet the increasingly exacting sealing demands of present day engines, and comprises a thin steel core with perforated dimples, and a sealing element of a special asbestos-elastomeric compound bonded into the core to form an integral structure. The thin-steel core is formed with the continuous projections alternating in each face, the penetration of which increases stability and heat conductivity. The material is intended for use where the requirements are high-dimensional stability and high heat and crush resistance with excellent torque retention. Diagram.

625 BRITISH PATENT 905,054. WATER-LAID ASBESTOS SHEET. Armstrong Cork Co.

The invention relates to the deposition of the rubber content of a synthetic rubber latex upon chrysotile asbestos fibres while in suspension in water, and thereafter forming the resulting slurry of coated fibres into products such as sheets and the like.

626 BELGIAN PATENT 616,156. SEALING DEVICE FOR ROTARY TUBULAR FURNACES. Huttenwerk Obernausen.

A sealing device for rotary tubular furnaces comprising a friction joint member made of, e.g., a copper-asbestos or graphite asbestos composition. The joint may be reinforced with compression springs.

627 BRITISH PATENT 908,969. IMPROVEMENTS RELATING TO EPOXY RESIN COMPOSITION. Koppers Comp. Inc.

The specified adhesive composition may contain inert fillers such as asbestos and asbestine.

628 U.S. PATENT 3,055,434. ASBESTOS FIBRES IN MINE ROOF COATINGS. William C. & R. Streib, G.James, III (to Johns-Manville).

The use of asbestos fibres for a coating sprayed on the roof and the walls of coal mines instead of limestone is described. The object is to improve the visibility and to dilute the explosive coal dust by the continuous sifting down of the noncombustible asbestos fines.

629 BRITISH PATENT 908,749. EPOXY RESIN COATING COMPOSITIONS. Conch International Methane Ltd.

This invention relates to coating compositions particularly useful in constructing containers for liquefied gases such as liquid nitrogen or liquid methane. The following are examples of the coating :-

Table 1.

Spec. No.	Alumina Alcoa A-2	Alumina Alcoa A-60	Asbestos 7 TF	Asbestos 7M	Asbestos 7 T	Epoxy Resin	Curing Agent.
1	7		35.5			52.6	4.1
2	7			35.5		52.6	4.1
3		10		45.0		45.0	3.5
4		7		35.5		52.6	4.1
5		10			45.0	45.0	3.5

PART 7. PLASTIC BUILDING MATERIALS.

630 PROSPECT FOR PIPES. Anon. British Plastics, August. 1962. page 398.

Recent publication of British Standards dealing with unplasticized p.v.c. pipe for cold water and industrial use has given the plastics pipe market considerable impetus, enlarging its scope beyond well established usage in the chemical industry. This new sanction, conservative opinion estimates, will enlarge the market for these products sixfold by 1965. At this significant stage of development current and potential applications for plastic pipelines in the U.K. are reviewed, together with some present trends in the U.S.A.

631 VINYL FLOOR COVERINGS. S.Mottram & L.R.Anthony. British Plastics, July, 1962.

Modern Vinyl floorings have a better colour range and greater resistance to corrosion and abrasion than most conventional materials. The authors consider the types of vinyl floorings available and the factors affecting their formulation, and discuss plant requirements and rotogravure printed flooring; specifications for p.v.c. flooring are given with particular emphasis on British Standards requirements.

632 BRITISH PATENT 903,212. WINDOWS & ROOF LIGHTS. E.I.Weidner. Priority 9.3.60.(Patent of addition to B.P.829,442) Pub. 15.8.62.

A specified double-glazed window or rooflight which may be made of synthetic plastics such as Perspex, may be mounted in a resin bonded glass fibre frame.

633 A CONTINUOUS METHOD OF THE PRODUCTION OF ASBESTOS-VINYL FLOORING PLATES. P.D.Kutsevol. Stroit.Mat, 1962, 8, No.6, p.40.

A continuous method of the production of asbestos-vinyl flooring plates of Congoleum-Nairn Inc., (U.S.A.) is described in detail. The plates are made of polyvinylchloride (14%), waste asbestos,(up to 40%), Lime powder (up to 40%), dibutyl phthalate (up to 6%), calcium stearate (1%) and colouring materials (1-5%). The production is automatic the capacity of the plant is 7.5 mill.m.2 per year.

634 GERMAN PATENT 1,137,203. PREVENTING THE DISCOLOURATION OF NATURAL ASBESTOS USED AS A FILLER IN THERMOPLASTIC POLY-VINYLCHLORIDE MASSES. Argus Chemical Corpn.

The discolouration of iron-containing asbestos during the formation of shaped bodies of polyvinyl chloride masses at elevated temperatures is prevented by adding to the mass an aliphatic or cycloaliphatic compound which contains two or more hydroxyl groups in a molecule. A typical composition comprises (in parts by weight) : PVC 100, a plasticiser 15-60, asbestos (e.g. chrysotile asbestos) 20-200, other fillers 10-200, pigments 0-20, protective agent (e.g. pentaerythritol) 1-20.

635 BRITISH PATENT 909,332. FIRE-RESISTANT, MULTI-LAYER BUILDING ELEMENTS. Glas und Spiegel. M. A-G.

The patented element comprises a primary layer having good thermal insulating properties and composed of mineral fibres bound together by a non-combustible agent, a mechanically strong layer arranged on one side of the primary layer, a refractory asbestos layer arranged on the other side of the primary layer and an external facing layer arranged on the outside of the refractory asbestos layer.

636 PLASTICS IN BUILDING. Australian Plastic & Rubber, May, 1962, pp.35-63.

This comprehensive article deals with the following subjects :-

1. Plastic & Rubber.
2. Roof and Ceiling.
3. Walls.
4. Floors.
5. Electric systems.
6. Plumbing (pipes)
7. Sealant & Cements.
8. Colour & Texture.

637 RESEARCH ON ASBESTOS-ASPHALT ROAD-SURFACING COMPOSITIONS. L.Kasdan (Johns-Manville Corp.) Gummi-Asbest-Kunststoffe, 1962, 15, No.9, 812, 814.

A new asphalt-base road-surfacing composition containing 2-3% asbestos fibres has been tested in 50 localities in the U.S.A. This composition proved to be more durable and resistant to wear and atmospheric influence than normally used asphalt-base compositions. The composition is especially suitable for jet aircraft runways, heavy-traffic roads, etc. The layer of the asbestos-asphalt composition can be thinner (e.g. 2.25 in.) than in the case of other compositions. Details of further research carried out by Johns-Manville Corp., are given.

PART 8. ASBESTOS PAPER & INSULATING MATERIALS.

638 PYROLIZED ASBESTOS PAPERS ARE FREE FROM BLISTERS. Mat. in Design Eng., October, 1962. 56, No.4, p.204-206.

Asbestos papers that have been treated by a pyrolizing technique are said to make excellent ablation materials when combined with phenolic, modified phenolic and other high temperature binders. The 100% inorganic asbestos papers, called Novabestos, are marketed by Raybestos-Manhattan, Inc., Asbestos Textile Div., Mannheim, Pa., In the pyrolizing treatment, the high temperature vaporizes the saturant which accumulates after manufacture, thus preventing gas pockets and blisters from forming when the paper is in service.

639 JAPANESE PATENT 13184/62. FIREPROOF DECORATIVE ASBESTOS PLATE. T. Sugimoto.

A fireproof asbestos plate, or the like, is coated with a mixture of a polyester solution with an acetate ester, e.g., ethyl acetate, and an alcohol, e.g., methyl or butyl alcohol, or xylene. An asbestos paper, having a coloured pattern and soaked with the polyester coating solution, is then applied onto the plate, covered with cellophane and a cushioning pad, and pressed with heating. When the composite laminate is dried, the cellophane and cushioning pad are removed.

640 GERMAN PATENT 1,135,815. PROCESS FOR THE PRODUCTION OF INSULATING BODIES. F. Bohle.

Insulating bodies are produced by mixing together kieselguhr, a rapidly setting cement, clay and mineral fibres, with the addition of water and a foaming agent, forming the mixture to obtain the desired shape, drying and covering the surface of the body with a layer of foamed polyurethane-base material.

641 HOW PIPE INSULATION SECTIONS ARE PRODUCED. Pipes and Pipelines, 1962, 7, No.2, 59-62.

New materials for the heat-insulation of pipes, produced by the Chemical & Insulating Co., Ltd., Darlington, are "Darlington 85% Super Magnesia" and "Darlington Paratemp". The chief characteristic of 85% Super Magnesia is that instead of being merely held together by the reinforcing effect of the asbestos fibre content (15%) it is chemically bonded together; the crystals "grow around" the asbestos fibres to give a product of high mechanical strength, high resistance to vibration and high retention of shape after wetting. Darlington Paratemp is a calcium silicate insulation intended for a higher temperature range than 85% Super Magnesia, is similarly bonded together, and has similar characteristics. It is made from hydrated lime, silious constituents and asbestos fibres.

642 BRITISH PATENT 882,021. RADIATION SHIELDING FOR NUCLEAR EQUIPMENT. John Thompson (Nuclear Energy Co.)(Nov.8,1961)

Claims are made for nuclear reactor radiation shielding consisting of successive layers of lead (gamma-ray absorbent and nearest to the source of radiation), boron asbestos or a similar boron-rich material (thermal neutron absorbent), unborated bitumen (fast neutron absorbent) and on the outside a second layer of lead.

643 U.S. PATENT 3,053,727. MOUNTING FOR ELECTRICAL RESISTANCE ELEMENTS AND METHOD FOR PREPARING THE SAME. George J. & Quinn Adomshick, G.Robert. (to Johns-Manville).(Sept.11.'62)

Board made of asbestos, diatomaceous earth, and sodium silicate containing aluminium phosphate.

644 NEW CABLES WITHSTAND MORE HEAT. M.C.Cheney. (Lewis Eng.Co.) Electronics, August 31, 1962, 35, pp.60, 62.

New insulation based on asbestos and elastomeric materials for signal carriers in miniaturized systems and for power cables are described. They were developed to withstand head and radiation.

645 GERMAN PATENT 1,135,261. PRODUCTION OF PLATES, SLABS AND MOULDING PREPARATIONS CONTAINING BONDED ANHYDRITE POWDER AND CHARACTERISED BY HIGH RESISTANCE TO RADIOACTIVE RADIATION AND HEAT. P. Jolly.

Natural anhydrite powder and asbestos waste fibres (in a ratio of from 2:3 to 3:2) are mixed together with 5-10 wt % of a metal sulphate, 5-10% sodium silicate, 3-6% hydrochloric and optionally 3-6% calcium chloride, and alkali-free water is added in such an amount that the mixture is just damp. The mass is then formed, rolled or pressed, and then dried.

646 INVESTIGATION OF THE PROCESSES OF THE HARDENING OF ASBESTOS-SILICATE HEAT-INSULATING MATERIALS. I.Z.Volchek & O.T.Gracheva, Stroit.Mat.1962, 8, No.10, pp.35-38.

Asbestos-silicate heat-insulating materials are produced by the autoclave process from aqueous suspensions of finely dispersed silica, lime and fluffed asbestos with simultaneous or subsequent drying. Silica reacts with calcium hydroxide forming compounds which act as binders, whereas asbestos plays the role of a reinforcing agent. The strength and specific gravity of the products depend on a number of factors : the type of siliceous material used (in this case diatomaceous earth and marshallite) its dispersion and the ratio to the lime and asbestos, the amount of water used in the preparation of the pulp, the course of the autoclave treatment (the pressure was increased to 8 atm during 2 hours, maintained for varying periods of time, and then released during 1 hour) and the use of the intensification of hardening (NaCl & CaSO). The best results were as follows : The strength of the marshallite-base material attained 17.2 kg/cm^2 (9 hours in the autoclave) when the degree of the dispersion of marshallite was 8100 cm^2/g and the ratio lime:marshallite was 0.75, the amount of asbestos being 20% with the ratio water:dry substance equal to 3. The strength of the diatomite-based material was less, e.g. 8 kg/cm^2. The addition of the intensificators resulted in a considerable increase in the strength of the products; viz., 25-30% by adding 1-2% NaCl to the marshallite composition and up to 100% by adding 10% CaSo$_4$ to the diatomite composition.

647 RUSSIAN PATENT 145,744. PLASTICS DIELECTRICS. S.M. Zhivukhin et al.

A process for the production of heat-stable materials possessing good mechanical and electric insulating properties comprises mixing a 50% alcoholic solution of phenol (resol) and butynal-phenol resins with an acetone solution of low-molecular weight polymers of phosphonitrilo-chloride taken in an amount of 5-10 wt.%. While mixing the solution, a filler is added, such as glass fibres, asbestos aluminium oxide, powder aluminium metal and other mineral materials.
The composition is dried in air, and then pressed at 100 atm. and a temperature of 140-150°C for 15 mins. The heating is continued at 140-150°C for 6 hours and then at 700°C for 10 mins.

PART 9. REFRACTORY FIBRES.

648. NEW REFRACTORY FIBRES FOR ABLATION, THERMAL INSULATION. J.P. Sterry to H.I.Thompson Fiber Glass Co., Materials in Design Engineering, Oct.1962, 56, No.4. p.12.

Refractory oxide fibres of both zirconia (zirconium dioxide) and zircon (zirconium silicate) are now being produced in production quantities. Fibre length at present can be varied from 1 to 12 in.; continuous fibres are under development. Currently the short fibres are available in the form of wool, felt and/or batt, suitable for resin impregnation and moulding. The fibres can be laminated and moulded by virtually any conventional moulding method.

649. PRICES OF CARBON AND GRAPHITE FABRICS AND FIBRES. Materials in Design Engineering, Oct.1962, 56, No.4, p.155

Prices of carbon and graphite fabrics and fibres have been cut 5-9% by National Carbon Co., a division of Union Carbide Corp. The reductions apply to graphite cloth, carbon cloth, and carbon and graphite staple fibres used for reinforcing structural materials.

650. TWO NEW GRAPHITE INSULATING MATERIALS. Materials in Design Engineering, Oct.1962, 56, No.4. pp.5-7.

Two new graphite insulating materials which are claimed to possess unique handling features have been announced. One material, in the form of pure graphite tape, combines the heretofore unavailable property of flexibility with the thermal insulating properties of pyrolytic graphite in the cryogenic to 6700°F range. The tape has a tensile strength of 18,000 psi in 6-mil thickness. A second material is a graphite insulation in bulk form which reportedly can be cut, pressed or sanded and still maintain its effectiveness to temperatures in excess of 6000°F.(Soutce: High Temperature Materials, Inc., 130, Lincoln Street, Brighton, Mass.).

651. BORON FIBRES FOR STRONGER COMPOSITES. Materials in Design Engineering. Oct.1962, 56, No.4, p.11.

The major significance of the new filaments, lies in their exceptionally high modulus (roughly five times that of E glass at room temperature). Coupled with this is their high strength and low density, both comparable with those of E glass, and melting point of 3700°F.

PART 10. MISCELLANEOUS.

652 FRENCH PATENT 1,300,402. TREATMENT OF CRUDE ASBESTOS K.A. Oesterheld.

Crude asbestos fibre bundles are dispersed in a liquid and the mixture is passed under controlled pressure between working surfaces where the fibres are subjected to rubbing and bending. The fibres thus prepared are suitable for the production of asbestos cement, asbestos textiles and cardboards, and also for the preparation of resin-containing masses for the manufacture of, e.g. floor coverings and the like.

653 BELGIAN PATENT 617,157. LIQUID CEMENT COMPOSITION. Dunlop Rubber Co.

A liquid cement comprising a latex or dispersion of natural or synthetic rubber and a filler which may consist, wholly or in part, of natural or synthetic fibres. Suitable latex comprises polychloroprene, or a graft copolymer obtained from natural rubber latex and trichlorobromomethane. The fibres may be asbestos fibres of a length of no more than 0.25 in.; they may be used in an amount of 10-30% based on the dry weight of the composition. The composition may also contain a diluent, an oxide of a group II metal, e.g. ZnO, an antioxidant, a stabliliser and a thickener.

654. FRENCH PATENT 1,303,443. SUPPORT FOR ELECTRICAL RESISTORS. Johns-Manville Corp.

Support for electrical resistors consists of a plate made from asbestos fibres (40-60%), diatomaceous earth (35-40%), and an alkali metal silicate (7.5-12.5%) and it is impregnated with an acid solution of aluminium phosphate (so that it retains 15-40% of the solute). A coating is applied onto the hardened body to prevent the impregnating agent from escaping or diffusing to the surface of the body.

655. BRITISH PATENT 906,867. PROCESS FOR DISPERSING SOLIDS IN POLYMERS. North American Aviation Inc.

One of the objects of this invention is to provide a process for the manufacture of rocket propellants. The solid filling substances with which the liquid organic materials are loaded may be asbestos fibre.

PART 11. REVIEW OF JOURNALS.

ASBESTOS, October, 1962.
807 Western Saving Fund Bldg., Philadelphia 7, Pa., U.S.A.

656.

ASBESTOS-CEMENT REVIEW. October 1962.
Kirchgasse 40, Zurich, Switzerland.

657.