

ASBESTOS BULLETIN
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PART 1. MININGCANADA

- 410 McADAM WILL DRILL - ASBESTOS PROSPECT. Can. Mining Journal 1961, 82, No.6, p.134.

Following a magnetometer survey of the property, McAdam Mining Corp. announces it will commence diamond drilling after the break-up on its asbestos prospect at Roberge Lake, northeast of Chibougamau, Quebec. It is stated the magnetometer survey has indicated that an asbestos bearing zone, which was discovered and trenched fairly extensively several years ago, may extend for a length of 2,200 ft. In this trenching asbestos occurrences were noted over a strike length of 1000 ft., and across a width of 600 ft. (complete abstract).

- 411 QUEBEC. The Mining Mag., 1961, 105, No.1, p.35.

In 1960, Lake Asbestos of Quebec Ltd. treated 1,650,510 tons of rock and recovered 86,621 tons of fibre. Production at the Black Lake mine is expanding, the 1959 output being 56,890 tons.

A drilling party has been sent to its asbestos property in Ungava by the Murray Mining Corp. Four sampling holes 25 ft. are planned. Work to date has, it is stated, outlined 11,681,260 tons of ore averaging \$18.5 a ton (complete abstract).

- 412 USE OF CONCRETE IN MINING AT THE JEFFREY MINE D.P.R.Smyth. Can. Mining and Min. Bulletin, 1961, 54, N590, p.455.

Asbestos ore at Johns-Manville W. Jeffrey mine is mined from a large open pit and by block caving from underground. Concrete has been a most necessary and important aid to mining and has been used to replace other more expensive materials. It has eliminated fire hazard and made working conditions safer. Pipe-line concrete avoids interference with the normal mining operations. The pneumatic placer and the pipe-line, in conjunction with a proper batching method, can deliver concrete to any point in the mine at a very reasonable cost per yard.

RHODESIA.

- 413 Asbestos Production for the 12 months ended 30th November 1960 amounted to 133,963 tons valued at £7,471,905.

U.S.S.R.

- 414 STRUCTURAL PECULIARITIES AND GENESIS OF KIEMBAISKOE DEPOSITS OF CHRYSOTILE ASBESTOS. V.N. Kuznetsova. Sov. Geologiya., 1960, No.8, 39-49.

Kiembaiskoe deposits take second place among all the asbestos deposits in the Soviet Union. The genesis of the chrysotile asbestos veins, their characteristics, types and dimensions of fibres etc., are described in detail.

- 415 TUVINSKAYA AUTONOMIC PROVINCE - THE SECOND ASBESTOS BASE OF THE SOVIET UNION. V.P. Ereamev. Sb. "Razvitie proizvodit. sil Vost. Sibiri. Geol. i mineralno-syr'evaya baza", AN SSSR, Moskva, 1960, 30-43.

With the discovery of Aktovraskoe deposits of chrysotile asbestos, in addition to Maloc Ayangatinskoe and Shurmakskoe deposits, Tuvinskaya Autonomic Province became one of the most important bases of the asbestos industry in the Soviet Union. The genesis of the Aktovraskoe deposits, the characteristics of the veins, etc., are described in detail.

- 416 AMPHIBOLES IN MAGNETITE AND PHLOGOPITE FORMATIONS OF ALDAN. D.P. Serdyuchenko. Sbornik "Zhelezn. rudy Yuzhn. Yakutii, Moscow, AN. SSSR, 1960, 326-357.

Amphiboles in crystalline schists, certain granites, contact-metasomatic and skarn formations of magnetite and phlogopite ores of Aldan appear usually in the form of hornblende, hastingsite, pargasite, actindite or tremolite. Chemical analyses, X-ray diagrams and heating curves of these minerals are given. The genesis of amphiboles and consecutive transformations in the series pyroxene - hornblende - tremolite - phlogopite are described.

- 417 AMPHIBOLE ASBESTOS ON THE WESTERN SIDE OF SUBARTIC URAL. M.V. Fishman and B.A. Goldin. "Tr. Komi fil. AN SSSR", 1959, No.7, 103-107.

Amphibole asbestos has been found in diabase-porphyrite formations (near Sabli). Asbestos veins with cross fibres appear in fissures and cracks where hydrothermal solutions have leached and transformed adjacent rocks. The composition of this asbestos corresponds to that of the actinolite-tremolite series. Chemical and optical properties of two local modifications are described in detail.

- 418 PETROGRAPHY AND MINERALOGY OF ASBESTOS DEPOSITS. Trudy In-ta Geolog. Rndn. Mestorozhd., Petrogr., Mineralogii i Geokhimii, AN SSSR., 1960, No.47, 76 pages.

MALAYA

- 419 THE GEOLOGY AND MINERAL RESOURCES OF THE KINTA VALLEY, PERAK. F.T.Ingham and E.F.Bradford. Mem. geol. Surv. Malaya 9, 1960, 347 pp.

General, structural and economic geology are discussed. Asbestos is among a number of mineral resources noted.

AUSTRALIA

- 420 DETERMINATION OF ASBESTOS FIBRE IN SLUDGE FROM DRILLHOLES IN THE BARYULGI DISTRICT, N.S.W. J.S.Henkel. Ore Dress. Invest. Univ. Melb. No.597, May 1960, 8 pp.

Certain samples showed fibre contents up to 6%; no assessment of the quality of fibre was possible because of the condition of the sludge and absence of core samples.

KENYA

- 421 GEOLOGY AND ASBESTOS DEPOSITS OF THE TAITA HILLS, KENYA. O.C.Farguhar. WITH AN APPENDIX ON THE MAKINYAMBU MINE, by L.D.Sanders. Mem. geol. Surv. Kenya No.2. 1960, 110 pp.

General structural and economic geology are described. The asbestos occurrences are examined in detail.

YUGOSLAVIA

- 422 CROCIDOLITE ASBESTOS OF HALILOVCE IN BOSNIA. S.Pavlovic and R.Milojkovic. Acad. Serbe des Sciences. Bulletin. Sciences Nat. No.7, 1959, 95-96.

Crocidolite mined in the vicinity of Halilovce is greenish-blue, its fibres are very thin and up to 5 cm. long; its refractive index varies from 1.658. Probable genesis of the formation is discussed in detail.

BRAZIL

- 423 MINERAL RESOURCES OF BRAZIL. VOL.1. NON-METALLIC MATERIALS. S.F.Abreu. Rio de Janeiro: Ministerio do Trabalho Industria and Comercio, Instituto Nacional de Tecnologia, 1960.

In part V, insulators and abrasives are described, incl. asbestos, diatomite, vermiculite, etc.

PART 2. ASBESTOS-CEMENT

- 424 PROTECTIVE JACKETS FROM ASBESTOS-CEMENT PIPES FOR METALLIC PIPES USED IN OFF-SHORE OILFIELD INSTALLATIONS. M.S.Alekperov and I.M.Kershenbaum. Stroit. Mat., 1961, No.6. 24-25.

Parts of metallic piles or tubes which are affected by sea-water corrosion are protected by means of jackets. Described in detail.

- 425 "ASBESTOS-CEMENT INDUSTRY ABROAD" ("Asbestotsementnaya promyshlennost' za rubezhom") V.G. Fel'zenbaum. Gosstruczdat, 1960, pp.143.

The technology of asbestos-cement industry in the U.S.A. and other countries is discussed in detail.

- 426 GOST FOR PLASTIC PACKING RINGS FOR ASBESTOS-CEMENT WATER PIPES. Byull. Stroit. Tekhnik., 1961, No.6. p.15-16.

GOST (Russian Standard) 5228-60 is to replace GOST 5228-50. It relates to the dimensions and physico-mechanical properties of plastic packing rings for joints of asbestos cement waterpipes (GOST 539-48), working under pressures of 5, 8 and 10 atm.

- 427 NEW UNITS AND COMPONENTS MADE FROM ASBESTOS-CEMENT (RESULTS OF A COMPETITION). Tech. Translations 5, 10, 567 (May 31, 1961) Zhukov K.

Arkhitertura SSSR 1959, 2, 6-11. 13p. translation 61-15924 available from Library of Congress: microfilm \$2.40 or photostat \$3.30.

- 428 DESIGNING AND CONSTRUCTION OF GAS MAINS USING ASBESTOS CEMENT PIPES. V.S.Loginov and G.A.Yakovlev. Stroitelstvo Truboprovodov, 1961, 6, No.4, 25-27.

Special asbestos cement pipes of a diameter of at least 100 mm. are used; maximum working pressure is 0.05 kg/cm^2 . Parts of pipelines may consist of steel pipes, depending on local conditions (bridges, channels, etc.). The asbestos cement pipelines are laid at a depth of 0.5 - 1 m. Methods of installation, checking for tightness, etc. are described in detail.

- 429 UTILIZATION OF THE WASTES OF ASBESTOS INDUSTRY FOR THE PRODUCTION OF CONCRETE AND OTHER BUILDING MATERIALS. N.D.Reshetnyak and Yn. L. Vorob'ev. Tr. Kharkovsk. In-ta Inzh. Zh.-D. Transp., 1960, No.36, 133-145.

Wastes of Factory No.3 of the "Soyuzasbest" combine were subjected to mineralogical and petrographic analysis. It has been found that the wastes can be used as coarse fillers for concretes. Their use for the production of serpentinite cement requires some enriching operations because of a high content of non-serpentinite asbestos material.

- 430 UTILIZATION OF CHRYSOTILE ASBESTOS AS AN ADDITIVE TO BITUMINOUS MATERIALS USED FOR THE CONSTRUCTION OF ROAD SURFACES. R. Ariano. Strade, 1960, 40, No.11, 577-589.

- 431 PROCESS CHANGE ZOOMS OUTPUT OF ASBESTOS BOARD MILL. Chem. Processing 1961, 24, 6, 128-130.

News note about the installation of an impact mill made by Entoleter Division of Safety Industries Inc., and installed by Johns-Manville in its Nashua, N.H. plant.

- 432 CORRUGATED ASBESTOS ROOF FOR LOW COST HOUSING. Arch. Record, 1961, 129, 175.

433 CONVEYOR LINES FOR MAKING CORRUGATED ASBESTOS-CEMENT
WITHOUT TEMPLATES

I. A. Ivanov
Director of Belgorod asbestos-cement group.

The introduction of conveyor lines for making corrugated asbestos-cement without templates offers wide prospects for a complete mechanization and automation of the asbestos-cement industry.

The first such line, which was suggested by the Inventor, I. A. Tcherneto, was installed and is at present employed within factories of the Belgorod asbestos-cement group. The basic item of the line is a conveyor of preliminary hardening (setting), the adoption of which fundamentally changes the existing process of making asbestos-cement.

Instead of corrugating (moulding) the sheets on metal templates, the asbestos-cement sheet, as it comes off the forming bowl, is stretched on trucks of a constantly moving conveyor. The corrugating operation, trimming of the edges, and compressing takes place as the sheet moves forward. After that, the sheets proceed into the chamber of preliminary hardening. Thus, moving from floor to floor at a temperature of 65 - 80 deg. C, they become strong enough to be stacked after 50 - 60 min.

The hardening process is accelerated to a great extent by the action of washing the sheets all round by a heat carrier (hot air).

After leaving the conveyor of preliminary hardening the sheets are stacked on pallets, and then, by a crane placed on a conveyor, they are lowered into a water tank for hardening. The water temperature in the tank, like that in the chamber of preliminary hardening, is kept in the limits of 65 - 80 deg. C. Since the process of hardening is carried out under water, the strength achieved in 16 - 18 hours is equal to that of 7 - 10 days with the present process. The

two conveyors - one of preliminary hardening and the other for water hardening - form a 90 m. long production line. The former underwent prolonged trials in one of our group's factories, and the first series of material produced by this method has already been delivered to their customers. As for the conveyor for the water hardening process, similar installations were introduced a long time ago in many pipe-making factories, including ours, and have entirely justified themselves. Without any fundamental alterations the equipment will be employed for water treatment of corrugated asbestos-cement.

At present, preparatory work is being carried out in the group's factories on re-equipping two other production lines. These lines are laid out according to C. Tcherneto's invention.

As seen on the figure 1, the conveyor of preliminary hardening will be placed over that of water-hardening. This will not only make the production line shorter by half, but will also simplify removal of the hard sheets from the conveyor's trucks, and the subsequent stacking and placing of the stacks into the tank for water hardening. Such an arrangement allows use to be made of the returning trucks and also shortens the conveyor's length or height by 10%. Furthermore, the water conveyor's dissipated heat is utilized and the loss of heat in the chamber of preliminary hardening is reduced as far as the outlet openings because the trucks are situated at one end of the conveyor.

To enable the removal of the hard sheets from the head end (instead of the tail end, as in the original layout), the conveyor has the shape of an arch, under which the stacking equipment is placed.

The asbestos-cement sheet, which proceeds from the conveyor, is stretched on the conveyor's moving truck, corrugated, and slightly compressed along the crests of the corrugations. The edges are trimmed by means of a high-pressure water jet. This secures a better quality cut than the conventional trimming by discs.

The truck with the sheet on it proceeds further into the hardening chamber. Moving shuttle-wise upward in surroundings with a temperature of 65 - 80 deg. C, it reaches the stacker in 50 - 60 min. Removing and stacking is carried out by means of vacuum suction.

A lifting mechanism, working on the principle of auto- or electro-lifting gears, will be used to load the stacks on the conveyor for water hardening. It can be hydraulically or mechanically operated, with the forks placed at a distance slightly wider than the width of the conveyor belt. By lowering the forks beneath the latter, they leave on it the pallet with the sheets. The lifting device must operate in a similar way. The forks can be turned through 180 degrees, thus enabling the placing of a stack of ready products on the belt or its removal from the forks by means of an auto- or electro-lifting gear or crane.

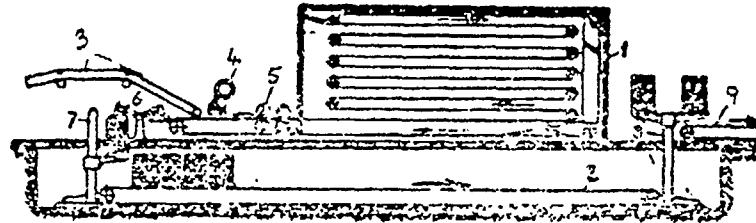
In this way, very favourable conditions are created for a complete automation of the asbestos-cement manufacturing process.

- 434 ASBESTOSIS - EPITHELIOLOGICAL STUDY IN AN ASBESTOS-CEMENT PLANT. Cantellano Alvarado, Luis and others. Salud Publica Mexico, 1960, 11, 557-566.

- 435 B.P.870,054. IMPROVEMENTS IN IMPREGNATING CEMENT-BONDED ASBESTOS BOARD. Midland Silicone Ltd.

Cement-bonded asbestos board is impregnated with a solution of a polysiloxane resin. Such a treatment improves the electrical properties of the material.

Fig.1. Mechanized production line.



1. Conveyor for preliminary hardening: 2. Conveyor for water hardening: 3. Transporting belt - stacker of sheets: 4. Corrugating equipment: 5. Compression rollers: 6. Stacking device: 7. Loading device: 8. Lifting device: 9. Transporting belt for ready products.

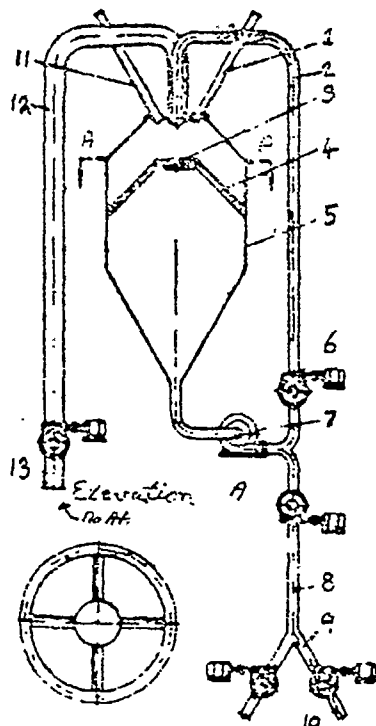


Fig.2. Hydro-opening of asbestos-cement.

- 1 - piping for water supply into the mixer.
- 2 - piping of the mixer's closed cycle.
- 3 - reflector disc.
- 4 - corner pieces holding the disc.
- 5 - mixer of the asbestos-cement suspension.
- 6 - worm for opening and closing the stop-cock.
- 7 - centrifugal pump, SHN - 150
- 8 - piping from the pump to the scoop mixer
- 9 - piping to the stop-cock
- 10 - piping from the stop-cock to the scoop mixer.
- 11 - piping for water supply to the mixer.
- 12 - piping for transfer of asbestos-cement suspension from the mixer.
- 13 - piping from the mixer to the stop-cock.

436

MACHINERY FOR THE HYDRO-OPENING OF ASBESTOS

V.V. Firulin,
Director of Krasnoyarsk Asbestos-Cement
Products Group.

The method adopted by factories in the asbestos-cement industry has many considerable shortcomings.

It is too time-consuming and based on low output machinery - edge runners and hollanders, installation of which requires considerable space. To improve the existing method of opening and to make it more productive, the rationalizers of the Krasnoyarsk group suggested that in the place of hollanders, machines of a new construction, working on the principle of hydro-opening (hydro-pulping) should be employed. This consists of a cylindrical tank with a conical lower part and 6 m³ capacity, centrifugal pumps, and piping. This opening of the asbestos and the preparation of the asbestos-cement suspension is illustrated by the sketch. In a special mixer of 2.5 m³ capacity (the mixing blades being rotated by a 10 h.p. electromotor) the asbestos suspension is prepared and pumped by a centrifugal pump (SHN - 150, with a capacity 150 m³/h) into the hydro-opening tank which is hand furnished with 1.5 m³ of water. To the conical part of the tank is connected a second centrifugal pump which sucks the suspension through a pipe and returns it back into the tank. The tank is provided with a nozzle which allows adjustment of the diameter of the opening and consequently the velocity of the stream. While the suspension is hitting with great force and velocity the reflector disc which is installed inside the tank, opening of the asbestos fibre takes place.

After the opening is completed, cement suspension (prepared in the same mixer in which the asbestos suspension was made) is supplied to the tank. To obtain a better contact of the cement particles with the asbestos fibrils, the blend is pumped once more through

the tank, and only then is it let out into the scoop mixer. In the first instance the unit was equipped with a pump, 5 NDV, which achieved opening degree of 90-96% in 1.5-3 minutes. However, the concentration of the blend was only 12 g/100cm³. It was necessary to install another centrifugal pump, SHN - 150, and after that the concentration of the blend reached the technical standard, but the degree of opening was reduced down to 78%. At present, members of the group are solving the problem of increasing the degree of opening at the same productivity rate by improving the unit.

- 437 German P.1,110,389. ROOF SUPPORT, ESPECIALLY ROOF RAFTER, PROVIDED WITH FRAMEWORK ANCHORED IN ROOFING SLAB. Rheinbau G.m.b.H.

Roofing plate consisting of asbestos cement or plastic, is provided, on its underside, with a ribbed layer of concrete in which the upper beams of the framework are encased.

- 438 U.S.P. 2,973,783. STRUCTURAL FORM PRODUCTION. C.F.Boe.

Method of production of structural units from an aqueous mixture of asbestos-cement is described.

- 439 U.S.P.2977,276 MACHINE FOR THE MANUFACTURE OF ASBESTOS-CEMENT PIPES, Johns-Manville Corp.

A machine for the manufacture of asbestos-cement pipes by a continuous process is described.

- 440 U.S.P.2,975,833. MACHINE FOR THE MANUFACTURE OF ASBESTOS-CEMENT SHEETING. A.Magnani.

An apparatus for manufacturing sheets of large size from a slurry of asbestos fibre and portland cement, the surface of the suction roller is provided with ribs forming channels which are externally defined by the web and which communicate with the suction source through outlet ports of the cylinder.

441 GERMAN PATENT 1,080,010. HYDROPHOBIZATION OF ASBESTOS-CEMENT PRODUCTS USED AS BUILDING MATERIALS. Th. Goldsmidt A-G

442 TECHNOLOGICAL PROCESSES IN THE MANUFACTURE OF ASBESTOS-CEMENT ARTICLES. P.N.Sokolov. Moscow, Gos. izd-vo lit-ry po stroit., arkhitekt. i stroit. mat., 1960, p.394.

443 PLINTKOTE TO BUILD \$10 MILLION ASBESTOS-CEMENT PIPE PLANT. E & MJ Mineral Markets. 1961, 32, No.29, p.6.

A plant having an annual capacity of 46,000 tons is to be built at Ravenna, Ohio, under a licensing agreement with J-M.

444 BRITISH P.858,790. MOULDING ASBESTOS-CEMENT PIPES. Marchioli.

The inflatable core of the parent specification is modified by the end of the yieldable ring having closed end, whereby the ring completely closes the end of the inflatable member.

445 BRITISH P.858,017; 858,720. MOULDING FIBRE-CEMENT ARTICLES. Commercial Casanova S.A.

The patents describe a method of moulding wherein the water expressed from the mass moving in the mould is forced into one or more than one water-collecting layers which covers the moulding space and comprises three elements; an outer impervious covering having holes in communication with a water-receiving space, a centre layer of metallic mesh and an inner fabric layer.

446 BELGIAN PATENT 596,897. MINERAL FIBRE SHEETS, Turners Asbestos Cement Co.

Mineral fibre sheets consisting of mineral fibres and a hydraulic binding agent are produced with the aid of a machine of the wet type, in which a rotating cylinder is contacted with a suspension of the binding agent and fibres. A to-and-fro movement in a direction roughly parallel to the cylinder axis is imparted to the fibres by an agitator, so that fibres in the peripheral vicinity of the cylinder, which are set in motion by the cylinder in the course of its rotation, are disposed at random.

PART 3, ASBESTOS TEXTILES

- 447 FIGHTING THE DUST IN ASBESTOS TEXTILE FACTORIES BY DAMP SPINNING AND WEAVING. A.J.Celis. Plaste und Kautschuk, 1960, 7, No.11, 560-561.

Increasing the moisture content of asbestos fibres by about 3% prior to spinning or weaving, reduces the concentration of asbestos dust in the air to about one-third as compared with dry spinning. However, small asbestos dust (particles of about 2.5 microns) is not reduced by this treatment. The process is described in detail.

- 448 HEALTH PROGRESS IN ASBESTOS TEXTILE WORKS. J.Mitchell. Arch. Environmental Health. 1961, 3, 1, pp.37-41.

Dust counts taken in 1936 are compared with those of 1960 to indicate the great improvement.

- 449 B.P.869,312. TREATING FIBROUS MATERIAL. Johns-Manville Corp.

The method and apparatus is especially suited for use in the cleaning of asbestos fibre to remove unwanted particles, such as dust, and is also intended for use in separating asbestos fibres of various length.

- 450 B.P.852,157. WOVEN TAPE-LIKE RESISTANCE HEATER ELEMENTS. T. French & Sons Ltd., J.Sellers, and T.E.Peace.

- 451 U.S.P.2,947,328. ASBESTOS DRYER FELT. V.D.Asten and J.G.Schoepf (Asten-Hill Manufacturing Co.).

- 452 U.S.P.2,948,641. TREATMENT OF ASBESTOS FABRIC. Thermoid Co.

In order to render asbestos fabric flameproof and to improve its flexibility etc., a mixture of fluoborate salt, mica and plasticizer is applied to it.

- 453 U.S.P.2,971,615. TREATMENT OF ASBESTOS YARN. Nalco Chemical Co.

Asbestos yarn for the manufacture of brake lining is impregnated with silica aerogel or the like and then dried.

- 454 U.S.P.2,972,221. NOVEL METHOD OF MANUFACTURING ASBESTOS YARN.
Rex Asbestwerke Graf von Rex.

The colloiddally dispersed asbestos fibre in an aqueous medium is extruded through a forming channel.

- 455 CAN.P.616,813. APPARATUS AND METHOD FOR OPENING ASBESTOS FIBRE BUNDLES. Johns Manville Corp.

- 456 FIRE RESISTANT PIPE. Modern Plastics, 1960, 38, No.3, p.158.

Synflex Products Div. hose originally developed as paint carrying drop lines for car manufacturers to reduce fire hazard in spray painting consists of a central nylon core tube covered with vinyl, and wrapped with Mylar-backed asbestos tape. The outer covering is 0.012" galvanised steel armor.

PART 1. ASBESTOS FRICTION MATERIALS

- 457 PASSENGER CAR BRAKE TESTING. The Engineer, 1961, 24, No.3, pp.444-450.

Two papers presented by A.E.Livsey, A.F.Prestidge and D.F.Moor at a recent meeting of the Institution of Mechanical Engineers are summarized.

- 458 TESTING OF CLUTCHES FOR DESTRUCTION. Automobile Engineer, June 1961, pp.224-227.

A new burst chamber for high speed testing of Borg and Beck clutches has been designed and installed by Automotive Products Group in their new test house.

- 459 COOLING HOT BRAKES. T.G.Hicks. Product Engineering, 1961, 13, No.2, pp.57-59.

A nomograph is presented which gives a rough idea of the time required by a brake subjected to short hard stops, to cool off before it is ready for the next stop. A second nomograph gives the drum radiating surface area required to keep the brake temperature rise within allowable limits.

- 460 BEARINGS FOR 1000°F AND ABOVE. *Product. Eng.*, 1961, 32, No. 33, p. 12.

No commercial materials have been developed specifically for use in bearings at 1000°F and above, but a survey by Battelle Memorial Institute shows that several cemented carbides and cobalt-base alloys should be serviceable under rolling-contact conditions at least to 1300°F. For sliding conditions nickel-base and cobalt-base super-alloys, cemented carbides, some cermets and a few pure ceramics all look good. Above 2000°F, intermetallics, graphite and some ceramics may be considered for potential bearing applications, but graphite, at present, appears to be the only material suitable for sliding-contact applications above 3000°F.

- 461 A NEW ANTIFRICTION MATERIAL based on polysulfide rubber and epoxy resin is reported by Russian scientists to have tensile and bending strengths equal to those of polyamide and anti-friction plastics. It surpasses them in chemical and wear resistance, adhesive properties, and low hygroscopicity.

Source: Review of the Soviet Technical Press, Apr. 28, 1961, Office of Technical Services, Washington 25, D.C.

- 462 BRITISH P. 846,837. METAL FRICTION ELEMENT. America Brake Shoe Co.

A sintered powdered metal friction element comprises a heat conductive metallic matrix of iron or copper with the addition of tin and a dispersion of 5-50% by weight of highly angular particles of sillimanite Al_2SiO_5 . Up to 10% by weight of graphite or lead is added as friction modifier, the mixed powders being preferably cold pressed and sintered under light pressure or hot pressed. Iron based compositions are sintered at 1800°-2000°F and copper based composition at 1500°-1700°F, a pressure of 150 psi being maintained during the sintering operation.

- 463 BRITISH P. 856,022. SINTERED METAL FRICTION ELEMENT. General Motors Corp.

A porous sintered metal friction element comprises a ferrous base metal and 20-32% by weight of graphite in which the graphite consists of a mixture of powdered graphite and flake graphite.

- 464 STOPPING FROM 100 M.P.H. R.N. Kemp. Automobil Eng. 1961, Febr. pp. 48 - 49.

Tests were carried out by the Road Research Laboratory on a 1957 standard production sport type car fitted with hydraulically operated, vacuum-assisted, self-adjusting disc brakes on all wheels. The mean breaking distances obtained in these tests were 47 ft. from 30-mph, 185 ft. from 60-mph, and 515 ft. from 100-mph.

- 465 THE DETERMINATION OF THE ABSORPTION PROPERTIES OF ASBESTOS BRAKE LININGS. A.F. Willert and J.I. Kostyerin. Kauchuk. i. Rezina, 1960, 19, No. 11, 24-28.

Standard methods of the determination of the relative absorption of water and oil by asbestos brake linings are described in detail.

PART 5. ASBESTOS REINFORCED PLASTICS.

- 466 BEHAVIOUR OF PLASTICS IN RE-ENTRY ENVIROMENTS D.L. Schmidt Modern Plastics 1960, 38, No.3. pp. 131-140

The performance of phenolic-asbestos mat is compared with other fibrous materials.

- 467 ASBESTOS-PHENOLIC MOULDING COMPOUNDS. Materials in Design Eng. 1961, 53, No.6, p.7.

"A series of asbestos-phenolic moulding compounds are recommended for ablation applications. Two grades are available: a gneral purpose compound for use up to 3500 F and a high temperature compound for use up to 6000 F. Some typical applications are insulations for re-entry vehicles and rocket motors. Source: U.S. Polymeric Chemicals, Inc., Canal & Ludlow Sts., Stamford, Conn." (complete abstract).

- 468 B.P. 873,974: FIRE RESISTANT FOAMS. Hooker Chemical Corp.

Asbestos fibre may be used as a reinforcing agent.

- 469 ASBESTOS-PLASTICS COMPOSITIONS USED IN ROCKETS
J.J. Mobilia and D.V. Rosato. S.P.E. Journal
1960, 16 No.8. 949-952

The use of asbestos in rockets is constantly increasing. New compositions consist of heat-resistant plastics, filled with quartz and graphite and reinforced with asbestos fibres.

- 470 PHENOLIC RESINS. Chem. Eng. 1961. 68, 13, 80.

News note on silicone - and polyamide-modified phenolic resins produced by Reichhold Chemicals, Plyophen 23-017 and 23-057, which can be used for heat-resistant laminates. Fillers such as asbestos improve their properties.

- 471 Germ. P.1,103,579. PROCESS FOR THE PRODUCTION
OF PLASTIC MATERIALS BY CURING POLYEPOXY
COMPOUNDS. Henkel & Cie.

Polyepoxy compounds are hardened by heat treatment and the action of curing agents. Numerous fillers, including asbestos, can be added.

- 472 US.P. 2,987,880 Insulation for Rocket Motors.
Phillips Petroleum Co.

This invention contemplates a laminate made up of the following components: a sandwich of aluminium foil between two layers of ceramic fibre paper adjacent to the motor case; and then a layer of phenolic resin impregnated asbestos. Preferably another layer of aluminium foil is also employed next to the asbestos layer.

- 473 CERAMIC ADHESIVE. Mat. in Design Eng., Aug., 1961, p.174.

A paste-like ceramic adhesive is now available from Melpar, Inc. It is claimed that it has high bond strength at temperatures up to 2600 F. It is particularly well suited for bonding graphite, zirconia, alumina and other nonmetallic materials.

PART 6. ASBESTOS PACKING, JOINTING, SEALING AND
COATING COMPOSITIONS.

- 474 Germ.P.1,104,775. PACKING RING. Goetzewerke Friedrich
Goetze A.G.

The ring consists of a corrugated annular member made of a metal sheet, housing in its grooves concentric rings made of rubber or plastic cords (internal rings) and asbestos cords (external rings).

- 475 SIMPLE COMPRESSION PACKINGS. M.M.Main and E.H.Stubenrauch.
Machine Design, 1961, 19, No.1, pp.51-57.

Compression packings create a seal by being squeezed between the throat of the box and the gland. It requires frequent gland adjustment to compensate for wear and loss of volume. The types required for various conditions are listed and the most commonly used packing lubricants are given.

- 476 HOW TO CHOOSE A DYNAMIC SEAL. V.L.Peickii, D.A.Christensen.
Product Eng., 1961, 20, No.3, pp.57-69.

The 5 basic types of seal available to the designer are shaft seals, face seals, compression packings, moulded packings and labyrinth of positive-clearance seals. There are 17 different materials to choose from. A review of all the types and an exhaustive analysis of each in terms of basic selection factors, materials and design recommendations are given in this survey.

- 477 NEOPRENE-ASBESTOS GASKET MATERIAL. Product Eng., 1961,
32, No.29, p.6a.

Short announcement of Rogers Corp., Rogers, Conn. new gasketing material for service against hot or cold oils of various types in fuel, lubrication and hydraulic systems. It is claimed that it has compressibility of 35% at 1000 psi and 45% at 5000 psi. Despite high compressibility, the material reportedly has excellent resistance to stress relaxation and resultant loss of bolt torque. Its longitudinal tensile strength is 2100 psi and transverse 1100 psi.

- 478 PERFORMANCE OF SOME MODERN GASKET MATERIALS. Mechanical World, June 1961, pp.203-210.

A discussion of the basic factors governing the performance and selection of resilient seal materials and the properties of some typical modern compositions.

- 479 BRITISH P.853,525. IMPROVEMENTS RELATING TO ROAD-SURFACING COMPOSITIONS. Semtex Ltd.

The composition for use in surfacing airfield runways, roads, pavements, loading platforms, railway-station platforms, may consist of:-

EVC (Corvic HO)	27 parts
Anthracene oil	50 "
Whiting	11 "
Asbestos (7R)	9 "

- 480 British P.850,796. BITUMINOUS COMPOSITION. Coal Tar Research Association.

A bituminous composition comprises a pitch of coal origin and/or medium or heavy tar oil in which is dispersed 10-20% of a coal. Fillers such as asbestos, flour and polymers such as butadiene-acrylonitrile copolymer may be added.

- 481 Russian P.135,996. MASTIC (CAPPING) I.K. Doronenleov.

A mastic for hot capping electro-vacuum equipment consists of: Adhesive No.88 (Russ. specification) 32%, bitumen 10%, marble G.P.1,108,53.

- 482 GERMAN P.1,107,135. PROCESS FOR THE PRODUCTION OF DURABLE COATINGS ON SURFACE OF METAL SHEETS EXPOSED ON THE OPPOSITE SIDE TO INTENSIVE HEATING. H.Henning and T. Ascher.

The invention relates particularly to the external coatings of exhaust pipes. The coatings consist of a binder and pigments and fillers. TiO_2 is a preferred pigment, and asbestos dust is a preferred mineral filler. Examples of the compositions according to the invention are given.

- 483 TWO COMPONENT PUTTIES FROM UNSATURATED POLYESTERS. E.W.Laue.
Gummi Asbest Kunststoffe 1961. 14, pp.532, 534, 536 & 538.

The raw materials for and the properties of caulking compounds are discussed. Asbestos is one of the fillers mentioned.

PART 7. PLASTIC BUILDING MATERIALS AND PIPES.

- 484 RIGID P.V.C. BUILDING PRODUCTS. British Plastics, 1961.
34, No.6, pp.334-335.

They are Terrain system for soil and waste drainage, roof drainage, warm air heating and ventilation produced by A.B. Plastics Ltd. The Rymway rainwater system introduced by Redland Tiles Ltd. and Yorks. Imperial Metals Ltd.

- 485 PLASTIC FACED PLASTERBOARD. Architect & Building News,
1961, 220, 2 p.76.

Announcement of Paramount Plasterboard and Paramount Dry Partition now available with high impact plastic and vinyl coatings.

- 486 GLASS FIBRE REINFORCED PLASTICS ROOF LIGHT. L.G.Owen.
Plastics 1961. 26, 284, pp.283-84.

Three designs are described.

- 487 P.V.C. WALL COVERING. Plastics, 1961. 26, No.283, p.58.

Six designs by Bernard Wardle (Everflex) Ltd., are to be used for wall covering and office partitioning in the new Shell Building at South Bank, London. A seventh is being used in the swimming pool.

- 488 VINYL SURFACING MAT IS ABRASION RESISTANT. Materials in
Design Engg., 1961. 53, No.6, p.176, 178.

News note about a new Armstrong Cork Co. product called "Autocord" with a vinyl surface bonded to a resin-saturated asbestos fibre backing.

- 489 WHICH FLOORING FOR THE LABORATORY. E.L. Lilly
Building Mat. 1961, 21, No. 8, p. 114.

The more scientific method of analysing the reaction of the chemical substances involved in the wear of a floor as its chemical constitution is being increasingly employed and this article is a contribution to such analyses.

- 490 Russian P.134,617. PRODUCTION OF POLYMER-BITUMEN
TILES. I.V. Provinteev.

The tiles consist of a black bitumen layer containing bitumen, coumarin resin, stearin, talc and asbestos fibres and of a finishing layer made of a powder mixture containing 7 - 9% of polyvinyl chloride, 3 - 5% of dibutyl phthalate 2 - 3% of techn. stearin, 8 - 12% of cyclohexanone-formaldehyde resin, 8 - 12% of polystyrene and 60 - 70% of pigments. The production method is based on hot pressing or calendering the bitumen composition with the plastic powder mixture.

- 491 NEW ASPECTS OF PLASTICS PIPE EXTRUSION. H. Dominighaus
and Dipl. Ing. Schiedrum. Plastics 1960, 25, No. 278p
497.

Discussion on ways and means of improving today's technique in so far as quality and output are concerned.

- 492 RIGID P.V.C. PRESSURE PIPE ON MARKET. Contract
Journal 1961 No.4278, p 1.540.

"Aspect" is the trade name for medium impact rigid P.V.C. pressure pipe made by Allied Structural Plastics Ltd.

- 493 RECENT APPLICATIONS IN CORROSIVE CONDITIONS OF
RIGID P.V.C. PIPING D.A. TREBURG. CORROSION
TECHNOLOGY. 1961, 8,7. pp 215-17.

A number of applications of P.V.C. Piping are described, including its use for water supply and gas supply lines.

PART 8 ASBESTOS PAPER AND INSULATING MATERIALS.

- 494 German P. 1,107,067. PRODUCTION OF A DENSE ASBESTOS PAPER WEB. Clupak Inc. (N.Y.)

A web consisting of asbestos fibres, asbestos powder and a small amount of a binder (starch or a resin) is subjected to a compression in the direction parallel to its surface, being at the same time subjected to a pressure applied in the direction vertical to its surface. The product has improved mechanical properties. The method permits the utilization of low-quality asbestos materials.

- 495 ASBESTOS: GENERAL, MINING, PROCESSING (28th Continuation) Gummi-Asbest-Kunststoffe, 1961, 14, No.5, 416, 418, 420, 422, 424, 426, 428, 430.

German (West and East) standards for various properties of asbestos paper and cardboard are compared with those of Czechoslovakia; density, moisture (max), asbestos and binder contents, losses on heating, strength and content of acid-soluble materials are tabulated. Standard tests are described. Manufacture of asbestos paper and millboard is described in detail, including type and characteristics of raw materials, production processes, machines, etc.

- 496 ASBESTOS AND ITS PRODUCTS IN FOREIGN TRADE OF VARIOUS EUROPEAN COUNTRIES. Gummi-Asbest-Kunststoffe, 1961, 14, No.5, 458-466.

Import and export of crude asbestos, asbestos paper and millboard, asbestos fabrics, sheets and various asbestos cement products in Switzerland, Austria, Italy, Great Britain, France, Belgium and Holland are discussed in detail. Tables (relating to some other countries) are included.

- 497 Belgian P.597,025. INSULATION. Bohle Cie, G.m.b.H.

Thermal or refrigeration insulation comprises a layer of mineral fibres (glasswool, rock wool, asbestos fibres), a layer of foamed polyurethane and a flexible supporting layer of hard paperboard, corrugated board or fabric, or sheets of synthetic or other material.

- 498 Germ P. 1,103,122. PRODUCTION OF RUBBER-CONTAINING PAPER, CARDBOARD ETC. F.D. Farnam Co., Chicago.

To an aqueous slurry containing up to 2% of animal, vegetable or mineral fibres (such as e.g. asbestos) is added a coagulating agent, and then slowly, a stabilized latex emulsion (under constant agitation with a gas). After the emulsion coagulates, the slurry is passed through a machine of a type used normally in paper production. Instead of latex, an emulsion of a synthetic resin can be used.

- 499 HEAT-INSULATING ASBESTOSILICATE PRODUCTS.
I.Z. Volchek. Stroit. Mater., 1961, 7, No.5, 9-13

"Asbestosilicate" materials, made from a mixture of silica, lime and asbestos, are characterized by good heat-insulating properties (thermal conductivity of 0.06-0.078 kcal/m.hr. $^{\circ}$ C) and a high mechanical strength (flexural strength of 5-14 kg/cm 2): their density varies between 200 and 400 kg/m 3 ; they can be used at temperatures up to 600 $^{\circ}$ C. Experimental work, carried out at Inzenskii combine, is described in detail. Marshallite was used as silica material; asbestos, of a grade not lower than 6, was fiberized (more than 70%). Autoclave treatment was applied which resulted in a reaction between silica and lime giving the product good mechanical properties.

- 500 Russian P. 136,225. PREPARATION OF A HEAT-INSULATING ASBESTOS-BASE MATERIAL, D.M. Flyate, N.T. Dodonov, K.V. Khartke, E.G. Vagaba and A.E. Gushchin.

In order to improve mechanical and heat-insulating properties of asbestos materials impregnated with organosilicon compounds and used as heat-insulators at temperatures up to 400 $^{\circ}$ C., up to 10% of cotton fibres is added, and the mixture is processed in machines of the type used in paper industry.

- 501 German P.1,108531. CORROSION-PREVENTING WRAPPING A. Hasenb.

The wrapping, protecting metal pipes from corrosion by alkalis, or acids consists of a fleece or fabric of glass or mineral fibres which are electrolytically coated with Cu, Cr, Ni or Ag, and of an anti-corrosion mass applied onto the said substrate.

- 502 ASBESTOS MOULDING SHEET. The Financial Times
August 30th 1961, p. 11.

An asbestos moulding compound has been developed in sheet form. The material is not woven and is said to be not only readily moulded but also to have exceptional clean-ness when it is machined. A tough, pliable, asbestos felt sheet capable of withstanding operating temperatures of 5,000 degrees Fahrenheit or more for periods of at least 90 seconds, it also resists only slightly lower temperatures for very long periods of time. At the same time the mechanical strength of the material is claimed to be good while it is pliable, and tests have demonstrated an excellent resistance to abrasion. It will also withstand other forms of erosion. The compound uses a special phenolic resin which enables the asbestos fibres to be free-flowing during moulding processes. As a result, seams made in the material and other types of joints can readily be worked together in a rather similar fashion to putty. It can be moulded at both high pressures and low pressures, as desired. It can be used in sheets less than $\frac{1}{8}$ inch thick or more than $\frac{1}{4}$ inch thick. Although originally developed for defence purposes, it is expected to find widespread industrial applications where high temperature resistance, heat insulation, abrasion resistance, intricate moulding and good physical properties are required. (complete abstract).

- 503 ASBESTOS: GENERAL, MINING, PROCESSING (29TH CONTINUATION).
Gummi-Asbest-Kunststoffe, 1961, 14, No.8. pp. 721-2, 724

Machines used for the production of asbestos paper are described. The production and properties of various grades of pure asbestos paper are discussed in detail. Data relating to the chemical resistivity of antophyllite asbestos, crocidolite, tremolite, amosite and chrysotile are tabulated.

PART 9. REFRACTORY FIBRES.

- 504 PROGRESS WITH REFRACTORY FIBRES. C.Z. Carroll-Porczynski.
Engineering Materials and Design 1961, 4, 7, pp 418-424.

Properties and uses of Refrasil, Potassium titanate, graphite and zirconium dioxide fibres are discussed; 7 tables, 14 figures, 35 references.

- 505 HEAT RESISTANT PLASTIC STRUCTURES WITH CONTROLLABLE POROSITY. Micarta Div., Westinghouse Electric Corp., Hampton, S.C., U.S.A.

Announcement of heat resistant plastic structures which are said to provide a new means of cooling rocket nozzles. The porous material can be made of glass, leached glass, or quartz fabric bonded with a high temperature phenolic resin. Controlling the porosity in the structure provides greater cooling where desired, as at the nozzle throat. Cooling is effected by evaporation, by coolant flowing through the wall, and by the formation of an insulating film inside the nozzle.

- 506 OFF THE LOOM: ROCKET ABLATIVE MATERIAL. Missile & Rockets, August 7, 1961, p.26.

The carbonaceous materials developed by the H.I. Thomson Fiber Glass Co., and designated as HITCO-C, have a purity of 96% carbon, and are being fabricated in both fibre, and fabric form. The Company says the materials retain strength over a broad temperature range, and even show a strength increase at temperatures over 3000°F. Compatible with most resin systems, the HITCO-C series can be fabricated by standard reinforced plastic techniques, such as high-pressure moulding and tape winding.

- 507 REFRACTORY INORGANIC MATERIALS FOR STRUCTURAL APPLICATIONS. H.A. Pearl, J.M. Nowak & others. U.S. Government Res. Reports, 1960, 34, No.2, p.177.

Thirty-five refractory inorganic materials systems were evaluated in exploring possible techniques to prepare refractory inorganic materials into high temperature aircraft structural elements. The fabrication techniques were evaluated by the results of room temperature modulus of rupture, impact and thermal shock tests. The best over-all Bell Aircraft system was based on .003" alumina-silica paper impregnated with alumina-silica cement. Specimen of this system were tested at elevated temperature (2000°F) for modulus of rupture, compressive strength, and compressive shear.

- 508 B.P. 871,577. CERAMIC FIBRE PRODUCTS. The Carborundum Co.

This invention relates to a method and apparatus for forming ceramic fibre products bonded with colloidal silica.

- 509 AS REINFORCEMENT FOR PLASTIC Product Eng. March 27
1961, p. 9.

A recent report from H.I. Thompson Fiber Glass Co. indicates that zirconia-phenolic laminates will have excellent short-term heat resistance, relatively low thermal conductivity and good flexibility. Structural composite, thermal insulation and ablation shields are among the possible application for this new material. Since Zirconia fibres can be made in both "wool" and filament form it should find many new outlets.

- 510 NUCLEAR FUEL IN THE FORM OF GLASS FIBRES. K. Lustig.
Soviet Science, Glass and Ceramics, March 1960.

The author proposes that nuclear fuel elements be made of glass fibres containing oxides of uranium, plutonium or fluorium. Advantages claimed for this novel approach to the nuclear fuel problem are: chemical stability, thermal stability and heat resistance which make it possible to operate reactors of temp. up to 1,000 C; extensive possibilities for varying the content of fissionable material and using different type of fuel, continuous removal of fission products by the liquid coolant and of the replacement of fuel elements: and simplicity and low cost production. The author states that glass fibres containing uranium-235 has already been tested in Soviet reactors.

- 511 FUSED QUARTZ TAPE FOR HIGH-TEMPERATURE INSULATION.
Product Eng., 1961, 32, No.29, p 8.

Amersil Quartz, Hillside, N.Y. has fused quartz tape ready for evaluation in sizes from 2 to 8 inch. (press announcement).

- 512 STUDIES OF METAL FIBRE REINFORCED CERAMIC COMPOSITE
MATERIALS. E.Z. Stowell and Tien-Shin Lui, Southwest
Res. Inst. San Antonio, U.S.A.

The mechanical behaviour of ceramic materials at elevated temperatures is described from a phenomenological standpoint. The viscoelastic characteristics of both the ceramic materials and metals at elevated temperatures make possible the prediction of their behaviour.

- 513 CHEMICAL "DRAWING" PRODUCES TUNGSTEN FILAMENTS.
Product Eng. August 7, 1961, p. 15.

Electrolytic etching techniques are now successfully being applied to production of fine tungsten filaments according to some Russian reports. The technique seems straightforward but there have been a number of problems in its application. Uniformity was poor owing to current fluctuations during etching as well as variations in the diameter of the original wire. New substitution of dc to ac current, reduction in electrolyte concentration and shielding of the system from the disturbing effect of air currents have brought substantial improvement. A 15-20% solution of sodium hydrate is being used in a dual-bath system. (complete abstract).

- 514 METAL FIBRES USED IN RESISTANCE WELDING.
Mat. in Design Eng. 1961, 54, No.1. P. 164.

An improved resistance welding technique uses a piece of fibre metal sheet between surfaces that are to be welded. The fibre metal sheet greatly increases the ratio of contact resistance to bulk resistance, permitting the metal in the fibre mat to reach its melting point quickly while the base metal remains cool. The improved welding method was developed by Armour Research.

- 515 B.P. 871,124. IMPROVEMENTS RELATING TO FUSED QUARTZ FIBRES. Engelhard Hanovia Inc.

The method comprises passage of a gas flame at a temperature higher than the melting temperature of fused quartz, into an open ended combustion conduit, feeding said material into flame, passing a high pressure gas over the flame and directing the flame over the material during its passage through the combustion conduit, melting the material and fiberizing by means of high velocity and high pressure gas.

- 516 German P.1,108,388. A PROCESS FOR THE PRODUCTION OF QUARTZ FIBRES. Engelhard Industries, Inc.

A process for the production of glass fibres by a stream of hot gases is applied to the production of quartz fibres. The gas temperature is above 1700°C, and the gas pressure is between 1.4 and 4.9 atm. gage.

PART 10 MISCELLANEOUS.

- 517 PULMONARY FUNCTION IN ASBESTOSIS OF THE LUNG.
M.E. Bader, R.A. Bader & I.J. Selikoff. Am. J.
Med. 1961, 30, 235-242.
- 518 PLEURAL CALCIFICATION AS A ROENTGENOLOGIC SIGN
OF NON-OCCUPATIONAL ENDEMIC ANTHOPHYLLITE ASBESTOSIS.
R. Kiviluoto. APCA Abst. 1961 7, 1, p7. Acta
Radiol. (Stockholm) Suppl. 194, 1-67 (1960)
- 519 Germ. P. 1,106,734. PROCESS FOR THE CATALYTIC,
FLAME-FREE BURNING OF GASEOUS OR LIQUID ORGANIC
COMPOUNDS. Z.H. Helberger.

Catalysts, containing mainly oxides of chromium III and IV and, optionally, oxides of other heavy metals, are deposited on inert carriers, such as asbestos, kieselguhr, etc.

- 520 Russian P. 132,525. TREATMENT OF BRITTLE CHRYSOTILE
ASBESTOS. I.N. Kuz'min, I.G. Kamenshchikov and M.P.
Ovchinnikova.

Asbestos for the production of filters is boiled for 1 hour in a 0.2-0.25% solution of HCl (15l. per 1 kg of asbestos), then washed with cold water and fiberized in an aqueous suspension (contng. 0.5 - 1% of asbestos) in a vertical paddle stirrer (900-1000 r.p.m., 40-50 mins.).

- 521 MEASUREMENTS OF THE PRESSURES APPLIED DURING THE
PRODUCTION OF ASBESTOS ROLLERS. N.A. Shirokov.
Steklo; Keramika, 1961, 18, No.4. 38-39.

The pressure applied during the production of asbestos rollers used for the vertical drawing of glass should be carefully controlled, otherwise the rollers cannot be properly machined, or if the pressure is too high, their axes may be bent. An apparatus for the measurement of pressures applied is described in detail.

PART 11. REVIEW OF JOURNALS

ASBESTOS - July, 1961.

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

522. ASBESTOS-CEMENT PRODUCTS IN THE CONSTRUCTIONAL FIELD. W.E.Sinc
W.E.Sinclair, pp.2-10.

The performance of asbestos-cement roofing in tropical conditions is discussed.

523. CANADIAN J-M TO USE SKIPS IN OPEN-PIT MINING. p.12.

524. E-E-H DUCT INSULATION p.14.

Baldwin - Ehret - Hill Inc.'s improved spun mineral fibre duct insulation is described.

525. RAYBESTOS REVEALS FINDINGS OF BRAKE TEST RUN, p.16.

This report indicates that the projected life of the stock sets of Raybestos proving ground tested brake lining used, averaged more than 42,500 miles.

526. CAPE INSULATION EXHIBITED.

New C posil HT moulded slabs and Aluminium Foil Faced Asbestos Cloth have been developed by The Cape Asbestos Co.Ltd.

527. IMPORTS & EXPORTS

AC-23 INTERNATIONAL ASBESTOS-CEMENT REVIEW

Editions Girsberger, Zurich, Switzerland.

This number contains numerous illustrated articles on Schools.

528. Selly Oak Boys Secondary Modern School, Birmingham.

529. Hockerill J.M.I. School, Bishopstortford, Herts.

530. Waltheof Secondary Modern School, Sheffield.

531. University Extension Buildings, Auckland, New Zealand.

532. Asbestos-cement partition walls.

533. A school in Lagos.

534. Prefabricated schools in Belgium.

535. An Italian proposal for a prefabricated school.

536. Secondary School in the Pestalozzi Children's Village.

537. Prefabricated school near Geneva.

538. School in Kauklahti, Finland.

539. Mount Lawley High School, Western Australia.

540. New buildings for the National Polytechnical Institute,
Mexico City.

541. Voldparkens School in Copenhagen.

542. French Prefab Schools.