

ASBESTOS BULLETIN

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C O N T E N T S

	Page
PART 1. MINING	100
PART 2. ASBESTOS-CEMENT	104
PART 3. ASBESTOS TEXTILES	115
PART 4. ASBESTOS FRICTION MATERIALS	118
PART 5. REINFORCED PLASTICS.	119
PART 6. ASBESTOS JOINTINGS, SEALING, AND COATING COMPOSITIONS.	120
PART 7. PLASTIC BUILDING MATERIALS AND TUBES	122
PART 8. ASBESTOS PAPER AND INSULATING MATERIALS	126
PART 9. REFRACTORY FIBRES.	127
PART 10. MISCELLANEOUS.	129
PART 11. REVIEW OF JOURNALS.	132

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PART 1. MININGCANADA.

432. CASSIAR ASBESTOS CORP. LTD. COMPANY HISTORY. The Mining World & Eng. Record. 1960, No. 4542, p. 322.

Highlights.

Mill capacity has recently been increased from 1000 tons daily to 1,500 tons. Ore reserves have been substantially increased. Spinning fibres provide wide profit margin, reserves of 5 million tons of cement fibre indicated in the Yukon provide flexibility. The Cassiar property consists of 42 claims, located about 86 miles by truck road from the Alaska highway. From there it is an additional 265 miles along Alaska highway to the railhead at Whitehorse. Shipments are then made by rail to Skagway on tide water, a distance of 100 miles and by ship to Vancouver, about 1,000 miles from Skagway. A road is currently being built to Stewart B.C., which will reduce the distance of shipments by land to 300 miles and shipments by water to 600 miles (total reduction 900 miles). In addition to original property, Cassiar has acquired 3 other properties. These are Clinton Creek and Caley, located northwest of Dawson and Letain, south east of Dease Lake in Northern B.C. On the Clinton Creek group some 5 million tons of asbestos ore is indicated and a new company is to be formed by December 31st 1960 to develop the claims. On the Letain group occurrences of good quality chrysotile fibre have been indicated and a new company, Kutchok Creek Asbestos Co., Ltd., has been formed to develop claims. Results of works on the Caley group were disappointing and its option has been abandoned.

433. ASBESTOS CORP. INTERIM REPORT. Can. Mining Journal. Sept. 1960.

Shipments of Asbestos Corp. from its mains in the Eastern Townships of Quebec during the first six months of 1960 were higher than in the first half of 1959.

Net earnings for the first half of 1960 were \$1,541,637 against \$1,172,544 in the same period of 1959.

434. MEETING OF THETFORD MINES BRANCH. Can. Min. & Met. Bulletin. Sept. 1960.

A regular meeting of the Thetford Mines Branch was held on June 30th. The programme was a Symposium by Branch members on Specialized Milling Aspects. The first speaker Mr. Andre Gauthier, Mill Superintendent for Lake Asbestos of Quebec Ltd., presented a paper on "Blending of Ores at Lake Asbestos of Quebec Ltd." He was followed by Mr. George Riley, Fibre Development and Control Supervisor for Johnson's Co., Ltd., who spoke on "The Asbestos Fibre Strength Unit".

436. THE UNITED ASBESTOS CORP. Can. Mining & Met. Bulletin.
September 1960.

The above company nearly doubled its production and nearly trebled its shipments of asbestos fibres during the first 6 months of 1960. The mill treated 823,841 tons of ore with recovery of 5-15% asbestos giving a total production of 12,541 tons of fibre, and the operating deficit was reduced to \$806,137.

437. NEW FOUNDLAND. Mining Journal. October 28th 1960.

Johns-Manville Corp., is joining Batino of Canada, Inc. Corp., and Financiere Belge de l'Asbest-Ciment S.A., European consumers of asbestos fibre, to develop an asbestos orebody in Newfoundland at a combined cost of \$18,000,000. Under the terms of agreement Johns-Manville will put up 49.62% of the money to bring the mine to production and will purchase 10,000 tons of fibres from Advocate Mines (which is holding mineral rights) at the market price. New and Financiere Belge will put up 16.54% and will each buy 7,500 tons and Batino will put up 17.3%.

438. AN ASBESTOS ASPHALT EXPERIMENT IN THETFORD. Can. Mining & Met. Bulletin. September 1960.

Engineers of Asbestos Corp. Ltd., together with a local firm of asphalt contractors are laying a 100 yard test strip of asphalt paving spiked with 2% of short length asbestos. Similar tests carried out in Canada and in the United States by Johns-Manville Co., show that the addition of asbestos fibre to an asphalt mix helps make road surface tougher and more resistant, reduces upkeep costs, and protects against springtime frost heaves, major cause of potholes.

439. UNDERCUTTING AT THE KING MINE OF ASBESTOS CORPORATION LTD. Harris, J.G. & Sluyter, R. Can. Mining Met. Bull. 1960, No. 576, pp. 392-396.

The authors describe the block caving operations at King mine for the last 20 years, with emphasis on the newer methods.

U.S.A.

440. U.S. BUREAU OF MINES ASBESTOS RESEARCH PROGRAM. Supplement to Mineral Market Report MMS 3079, (July 25, 1960).

Efforts to produce a synthetic asbestos will be continued.

440. JEFFERSON LAKE SULPHUR CO. Chem. Week. 1960, 87, No. 12. p.42.

The above company is arranging the financing for construction of a plant to process 2,500 tons/day of chrysotile asbestos ore at Copperopolis, Calif. Engineering studies have been carried out by Tellepsen Petro-Chem Constructors (Houston). Completion date: by fall of '61. The deposit is said to contain 15 million tons of proved chrysotile ore. Total output is expected to be marketed in California.

441. ASBESTOS CRYSTAL MINERALS STUDIED BY ZETA POTENTIAL MEASUREMENTS. Martinez, Edward & Zucker, Gordon L. J. Phys. Chem. 1960, 64, pp. 924-926.

The zeta potentials of chrysotile and lizardite were measured using the streaming potential method in an attempt to characterize their surface properties. This study was supported by American Smelting & Refining Co.

U.S.S.R.

442. EXPORT OF ASBESTOS FROM THE U.S.S.R. Mineral Trade Notes. September 1960.

1955	-	67.1	metric tons.
1956	-	89.5	" "
1957	-	103.4	" "
1958	-	117.5	" "
1959	-	128.6	" "

In 1959 43.4 metric tons were exported to Communist nations, and 85.0 metric tons to the Free world.

443. GENESIS OF AMPHIBOLE-ASBESTOS IN PRECAMBRIAN FERRUGINOUS AND SILICEOUS FORMATIONS. PERSPECTIVES FOR THE PRESENCE OF AMPHIBOLE ASBESTOS DEPOSITS IN KRIVOI ROG. Doklady Akad. Nauk U.S.S.R. 1960, 131, pp. 161-3.

The chemical character of the deposits is similar to crocidolite asbestos found in South Africa. It is expected that in Krivoi Rog a secondary sedimentary amphibole asbestos deposit of economically important dimensions will be detected.

CHINA

444. ORIGIN OF ASBESTOS DEPOSITS OF SHUI-TSING-PO, PENG-SHIEN, SZECHUAN. Lvi P'eng, Ti Chih Lun P'ing. Chem. Abstracts 1960, No. 15122.

During the late phase of serpentization the asbestos was deposited as fissure filling. The white and light yellow asbestos is comparatively abundant.

INDIA

445. MINERAL RESOURCES OF RAJASTHAN. M.L. Sethi. East. Metals Rev. 1959, 12, No. 1, pp. 133-135.

Rajasthan possesses considerable deposits of asbestos; the output in 1957 was about 700 tons.

INDONESIA

446. TRIAL ASBESTOS MINING IN JAVA. Gummi und Asbest, 1960, 13, No. 10, p. 895.

70 tons of raw asbestos has been obtained in trial mining in Central Java.

SOUTH AFRICA

447. MINING OF ASBESTOS IN SOUTH AFRICA. M. Knowles. Kautschuk und Gummi. 1959, 12 No. 7, pp. 171-175.

South African deposits of Amosite (and its modification Montazite), Crocidolite (blue) and Chrysotile asbestos are described. A small deposit of Tremolite and Antophyllite have been found in Natal and Transvaal. Total output in 1957 was 289,000 tons.

YUGOSLAVIA

448. A STUDY OF STRAGAR ASBESTOS. M. Karsulin. Zast. Mater. 1958, 6, No. 9, pp. 347-358. (in Serbo-Khorv).

Deposits of chrysotile asbestos have been found at Stragar (Serbia). Chemical composition is as follows: SiO_2 41.33%, MgO 39.47%, Al_2O_3 0.31%, Fe_2O_3 4.48%, CaO 0.73%, the rest unspecified. Fibres have a tubular structure and are tightly interlaced.

ARGENTINE

449. LA RIOJA DEPOSITS. The Mining Journal. September 30th 1960.

960, Asbestos deposits of over 100,000,000 tons have been located in the Argentine province of La Rioja, according to studies undertaken by the West German concern Rhein Stahl-Planung. The exploitation of the deposits would enable Argentina to stop importing asbestos which is now at an annual rate of \$ U.S. 5,000,000. The owners of La Rioja deposits announced their interest in obtaining foreign help in the exploitation of the asbestos, either in the form of technical aid and financing of the necessary equipment or by formation of a joint foreign-Argentine exploitation Co.

POLAND

450. ANTHOPHYLLITE FROM TAILLY IN THE CARBONIFEROUS SLASHIE, POLAND. M. Juskowiak. Inwart. Geol. 1960, 4, pp. 311-321. Inst. Geo. Warsaw.

The optical characteristics DTA curves and X-ray data are reported on the anthophyllite occurring in thin veins in serpentine.

451. Canadian P. 596,975. ELECTROSTATIC APPARATUS. Quaker Oats Co.

Improvement in an electrostatic apparatus employed in the beneficiation of asbestos rock.

PART 2. ASBESTOS-CEMENT.

452. TURNERS ASBESTOS CEMENT CO., LTD., AT WIDNES. An. -Works Visit. Water & Water Engineering. 1960, 64, No. 775, p. 417.

The above is the largest of 16 subsidiary companies of Turner & Newall group. A feature of Widnes Works is the recently installed handling equipment for cement. Pressurised rail containers are used to fill and replenish the 6 storage silos each 500 tons capacity. This is part of a modernisation scheme which in this factory alone has cost over £2 million in the last few years. Labour force at present is 1,550 full time employees.

453. PRODUCTION OF ASBESTOS-CEMENT PIPES IN TURKEY. Zement-Kalk-Gips. 1960, 13 (49), No. 9, p. 448.

A modern factory producing asbestos-cement pipes is going to be erected at Askisehir at the cost of 30 mil. Turkish pounds.

454. PROBLEMS OF WEATHER-RESISTANT COATINGS OF ASBESTOS-CEMENT WITH EMULSION COLOURS. H. Dittrich. Chem. Rundschau, 1960, 13, No. 5, pp. 123-124.

Many experiments have shown that asbestos-cement is incompatible with emulsion colours. Coatings made of such a combination are, or become, soon defective.

455. PRODUCTION OF ASBESTOS-CEMENT IN ITALY: Zement-Kalk-Gips. 1960, 13 (49), No. 9, p. 447.

The output of asbestos-cement products in Italy is steadily increasing. The 1958 production has reached 450,000 tons. Export of asbestos-cement articles is also increasing.

456. WHAT IS THE pH OF SEWAGE. R.E. Lander. Neasby & Mattison Co. Wastes Engineering. 1960, 31, No. 9, p. 502.

This survey was conducted solely to determine whether domestic sewage throughout the United States is acid. Alkaline sewage is the rule rather than the exception, based on studies of field conditions. Certain industrial wastes are highly harmful to pipes having a Portland cement or metallic content. Liquids such as metal pickling liquors or sulfite paper mill wastes for example, are extremely corrosive to even the most densely made concrete.

457. ASBESTOS-CEMENT FOR PANEL CONSTRUCTIONS AND ITS DEFORMATIVE PROPERTIES. L.N. Pitskel and G.V. Aleksandrova. Stroitel. Materialy. 1960, No. 9, pp. 7-10.

The factory "Krasnyi Stroitel" started the production of large asbestos-cement roofing panels, and the dependence of the product properties on the production conditions has been studied. In particular, the influence of pressures applied and drying conditions on the density, impact and bending strength and moisture content of the panels has been investigated. It has been found that the linear deformation of large panels is comparatively less than that of small panels.

458. HEAT-RESISTANT ASBESTOS CEMENT. K.D. Nekrasov and V.I. Presnov. Trudy N.-T M-ta Betona i Zhelezobetona Akad. Str-va i Arkhit. SSSR, 1959, No. 7, pp. 6-29; Ref. Zhur. Geologiya, 1960, No. 9, p. 17851.

459. PRODUCTION OF PANELS FROM ASBESTOS CEMENT. U Yao-khuai. Yejin jianshe. 1960, No. 3, pp. 28-29 (in Chinese); Ref. Zhur. Khim. 1960, No. 16, pp. 66, 307.

460. USING ASBESTOS CEMENT IN FACING BRICK BLOCKS. Bel'skii, A., Linevich, IA, & Kulin, V. Monthly Index of Russian Accessions 13, No. 5, p. 1553. (Aug. 1960). Sbor. nauch. trud. Bel. politich. inst. (White Russian Polytech. Inst. Coll. Sci. Papers). No. 81, pp. 147-149. (1959).

461. German P. 1,031,201. COLOURING ASBESTOS-CEMENT SHEETS. R. Piffko & W. Strohbehn.

Smooth surface coatings are obtained by pressing a plastic material into unset asbestos-cement sheet followed by pressing in colouring layer.

462. German P. 1,075,036. TREATMENT OF ASBESTOS CEMENT PRODUCTS. VEB Lokomotivbau-Elektrotechnische Werke "Hans Beimler".

Shaped asbestos cement articles are dipped in the first step in a solution of pure silicic acid esters (technical grade), and then in another solution containing, besides silicic acid esters, also alcohol and hydrochloric acid. In this way, a direct attack of hydrochloric acid on cement particles is prevented.

463. German P. Appl. 1,087,503. A MACHINE FOR THE PRODUCTION OF ASBESTOS CEMENT PIPES. Asbestos Cement Engineering Co., Vaduz, Liechtenstein.

A machine for the production of asbestos-cement pipes comprising rollers which form the pipes, a calender compressing the pipe walls, and means for conveying the pipes, all in a vertical arrangement.

464. German P. 1,087,850. FITTING FOR ASBESTOS CEMENT PIPE. Industrie Unternehmung Wavin N.V. (Zwolle, Neth.)

The construction of a pipe side-arm is described in detail.

465. German P. 1,090,563. PRODUCTION OF SHAPED ASBESTOS CEMENT ARTICLES. Eternit A.-G.

A pipe side-arm is formed and hardened separately and then is connected with the main pipe by cementing together contacting surfaces.

466. French P. 1,184,339. ASBESTOS CEMENT PIPE.

Etablissement pour Matériaux de Construction. Pressure device for machines making asbestos cement pipe.

467. Japan. P. 2,983,157. PRODUCTION OF REINFORCED ASBESTOS CEMENT PIPES BY CENTRIFUGAL METHOD. Kiuti Sizatsum.

Asbestos fibres (1 part by weight) are mixed with cement (4-5 parts by weight) and water. Reinforcing iron core is placed in a cylindrical form. The form is then rotated and filled with asbestos paste which thus forms the external layer of the pipe. Then the rotation is stopped and, before the asbestos cement hardens, concrete is poured in, to form the internal layer of the pipe. Asbestos fibres and cement penetrate into the pores of the concrete and in between the gravel. Upon hardening, the pipe is treated with steam and removed from the form.

468. Japan P. 3980'57. PRODUCTION OF PIPES FROM ASBESTOS CEMENT. Sinozuka Makoto and Tanabe Hisai.

A mixture consisting of asbestos fibres, (1 part), cement (5-8 parts) and water (5-10 parts) is supplied into a hollow cylindrical form made of elastic polyvinyl resin (extern. diam. 148 mm, length 430 cm, wall thickness 0.3-0.5 mm). Thus, on the form, an asbestos cement pipe is formed (length 403 cm, wall thickness 13 mm), and the whole assembly is placed in another, external form. Then, water is introduced under pressure inside the plastic form which is thus extended to a 150 mm. diameter. Upon the removal of the water, the plastic form separates from the asbestos pipe form, and the latter is removed from the external form.

469. U.S.P. 2,778,283. ASBESTOS-CEMENT NONEFFLUORESCENT, DECORATIVE WATERPROOF COATING. P.S. Betteli and others.

An aqueous dispersion comprising 55% ethyl acrylate, 39% methyl methacrylate and 6% methacrylic acid is sprayed on fresh partially dried asbestos-cement which has been oven heated to a surface temperature of 140 to 150°F. About 2 to 3 g. of resins solids are applied per sq. ft. of surface. Residual heat in the sheet dried the dispersion to a clear tack-free nonblocking film. The coated product may be stacked and residual heat completes the curing.

470. B.P. 847,220. COUPLINGS FOR PIPES. Societe Anonyme Eternit, Belgium.

The coupling for pipes comprises a sleeve with two grooves. Each groove having a side wall inclined to the axis of the sleeve so that the mouth of the groove is wider than the bottom. Rings of resilient material are lodged in the grooves.

471. U.S.P. 2,937,701. ASBESTOS-CEMENT PIPE MAKING MACHINE. L. Toniolo and G. Garbin.

472 MANUFACTURE AND USE OF ASBESTOS-CEMENT PIPES FOR GAS MAINS.

M.E. CHECHENIN, Candidate of Tech. Science. in U.S.S.R.

The Seven Year Plan calls for the increase in production of gas and oil by the end of 1965, to 150 milliards m^3 and 230-240 million tons, respectively. In connection with this target, about 53,000 km of main pipe lines and also a great number of pipe networks for the plant installations will be required. Part of this new requirement will be covered by the use of asbestos-cement pipes.

Already this year about 1,600 km (nominal dia. 200mm) of them will be used but, in 1965 at the end of the Seven Year Plan - 15,000 km, or 37.5% of the total requirements will be met by employment of asbestos-cement pipes.

In connection with this, it is of great importance to ascertain the basic characteristics of asbestos-cement pipes for gas mains; such as: the degree of their gas impermeability, required wall density, and also to determine the technological factors directly influencing their properties.

The first industrial gas main using asbestos-cement pipes of 300mm dia. was built in the year 1943, on the Buguruslan - Kuibishev sector, being 20 km long. When tested after being in operation for two years it has been found that at a pressure of 5 atm., the loss through the walls and through not tight enough joints of "Simplex" type, was about 2% of the total amount of the gas pumped through.

In the years 1943-1944 a second similar 8 km long gas main was employed to convey oil gas, in Uzbekistan. In this case pipes were joined using asbestos-cement couplings type "Simplex", and partly iron coupling type "Gibault". After ten years, samples were dug out and investigated. It has been proved, that the moisture absorption of the walls was 13%, and the specific weight increased to 1.83 gr/cm^3 , as against 1.6 gr/cm^3 for pipes produced by our factories. There were no breakdowns of the gasmain and at present it operates at a pressure of 2 atm.

There are many gas mains in Europe where asbestos-cement pipes are employed quite successfully. In Italy, for instance, such asbestos-cement gas mains have been in operation for a long time.

In the gas network of Budapest there are 63 km of asbestos-cement pipes, working at a pressure of 0.35 atm. In Prague there are also about 40 km of asbestos-cement pipes used for this purpose. In the latter case, Gibaux couplings are employed.

The above examples indicate that the employment of low pressure asbestos-cement pipes for gas mains is a sound proposition.

Particularly tempting are the prospects of employing asbestos-cement pipes, for collection and transfer of the "fat" oil corrosive gases, which are burnt up on oil fields without profit. For example, in the Bashkir Republic, where the gas is extracted together with the oil, and contains hydrogen sulphide, steel pipes previously employed there, due to corrosion of the inner surfaces by the sulphur compound, had to be replaced after 1 - 3 years of service. In contrast, asbestos-cement water pipes used for the supply of corrosive waters proved to be quite resistant to the action of hydrogen sulphide.

In order to determine the resistance of asbestos-cement pipes to corrosion the NII Asbestos-cement Institute carried out a number of experiments.

Samples of pipes 100mm in diameter were joined in consecutive order on a special mounting. They were coated on the inside with benzo-resistant enamels or impregnated with paraffin by-products from oil distillation. Samples submerged in water were also tested. Hydrogen sulphide mixed with vaporized benzene and water was passed through these pipes for a prolonged period of time. After five months their gas permeability was tested under 12 atm. pressure. (See Fig. 1.)

-In other experiments conducted under corrosive conditions, asbestos tiles were tested. Some of these were kept in a desiccator over water, others in benzene, and some were submerged in a mixture of benzene and water to imitate condensation product of gases. A mixture of hydrogen sulphide and benzene vapour was pumped through the desiccator daily.

The flexure strength of the tiles thus exposed for ten months increased by about 20%. The breaking area turned a blue-black, but there were no signs of destruction or delaminating of the asbestos-cement from the action of the hydrogen sulphide, either on the tiles, or on the pipes.

It is interesting to note, that steel tiles under similar conditions were destroyed as a result of corrosion.

The results thus obtained proved that asbestos-cement pipes do not require any protection against corrosion, when used in gas mains, and last considerably longer than steel pipes. A gas main of such (asbestos-cement) pipes has been in operation in Uzbekistan for over 15 years, and there are no signs of corrosion as yet, nor is there any decrease in the pipe efficiency.

For a wide application of asbestos-cement pipes for gas mains including the ones operating at increased pressures, and long distances, it is necessary to eliminate the short-comings of coupling joints, and to decrease gas permeability of the pipe walls.

As proved by numerous experiments, the gas permeability of asbestos-cement pipes depends largely on the humidity of the walls. Fig. 1 shows test results on the "Krasny Stroitel" factory's ordinary pipes.

The experiments were carried out on a special stand, where a certain length of each pipe was impermeably encased, and the filtered nitrogen-gas collected; its amount, related to a unit of the surface of the pipe and a unit of time, indicated the permeability of the walls in terms of $l/m^2/hour$. Losses were measured at pressures of 4, 8, and 12 atm., and the pipes were tested, first in dry air conditions (humidity of walls 8-10%), and then after heating at 110° In the latter case, the permeability proved to be about 10 times higher.

Results of other experiments (Fig.2) indicate that after exposure for a prolonged period in saturated air, the walls of the pipes at lower pressures are becoming practically impermeable, owing to the hygroscopic moisture. However, the pipes with prior saturated walls are impermeable for gas, even at a pressure of 12 atm.

Under operational conditions asbestos-cement pipe lines are additionally moistened by the ground waters. In this case the degree of their gas impermeability to a certain extent is governed by the density of the walls.

The tests carried out indicate that the best conditions for operating asbestos-cement gas mains are, when they are laid in moisture rich ground and the transported gas is unried. With regard to the production of pipes, all efforts must be made to secure adequately dense walls and free from big pores.

Table 1 shows the test results in dry air conditions of 100 mm. dia. pipes. It may be observed that the gas permeability of samples tested decreased with increased density, but the influence of the latter is less pronounced when the density of 1.8 gr/cm^3 was reached.

With regard to the various thicknesses and manufacturing factors of asbestos-cement gas pipes, it would be advisable to lay down the following minimum standards for densities of the walls: for small dia. pipes 1.80 gr/cm^3 ; medium - 1.75 gr/cm^3 ; large - 1.70 gr/cm^3 . Quoted minimum values are about 10 - 15% higher than those employed for the manufacture of water main pipes.

Table 1.

Group of the pipes	Density gr/cm^3	Water absorption %	Gas permeability $l/m^2/hour$ at		
			4 atm.	8 atm.	12 atm.
1	1.62	23.4	389	830	1315
2	1.67	21.8	267	615	1015
3	1.72	20.7	170	462	770
4	1.77	19.5	108	253	396
5	1.83	17.3	100	238	393

With the existing equipment an increase in pipe density can be achieved principally by proportional increase in the hydraulic pressure on the compressing rollers of pipe making machines and also by using better quality asbestos fibre (but lowering their content in the stuff). Careful opening of asbestos, uniformity of the stuff, good filtering on the machine's felt and good conditions for complete hydration of the cement in hardening pools, are further factors contributing to the production of high density pipes with a uniform and pore-free structure.

Fig. 3. shows results which were obtained after twofold testing of a number of 100 mm. dia. pipes with 11 mm. wall thickness, which were produced by NII Asbestokrem on an automatic machine under various pressures of the compressing roll. Gas impermeability and density of these pipes increased with the increase of compressing roll's pressure.

At repeated testing permeability of pipes increased as a result of drying of the walls, while being left in air. For pipes of such dia. this effect continues for about 6 months exposure. After that the gas permeability stabilizes and even somewhat decreases owing to the carbonization of the walls by the carbon dioxide from air.

Large diameter pipes having thicker walls are less liable to drying out. This explains their considerably higher gas impermeability. In Table 2 are shown the values of gas permeability for 100 mm. diameter pipes, made with different thicknesses of walls.

Table 2.

Thickness of pipe walls in mm.	Gas permeability of pipes l/m ² /hour					
	Air dry at			Subjected to drying (110°) at		
	4 atm.	8 atm.	12 atm.	4 atm.	8 atm.	12 atm.
9.0	400	754	1168	-	-	-
12.0	300	610	1060	-	-	-
12.5	392	740	1210	665	1210	1940
12.5	207	430	700	459	888	1400
13.2	270	532	885	740	1330	1940
13.5	246	442	708	-	-	-
14.7	207	416	702	476	878	1480
15.0	180	370	605	605	1210	1680
17.6	142	296	493	532	1020	1480
19.1	159	350	552	700	1330	2080
19.7	193	370	605	738	1480	2280
20.6	150	300	493	666	1210	1940
24.7	112	207	370	635	1210	1800
24.78	104	180	350	635	1210	1940

While increasing the thickness of the walls from 10 to 25 mm., gas permeability of air dry pipes decreased 3 - 3.5 times, and particularly sharp decrease was observed at interval from 10 to 18 mm., and increased gas pressure, although after an artificial drying all pipes had approximately equally high gas permeability.

Tests were also carried out in order to assess the gas permeability of asbestos-cement pipes subjected to maturing period. In table 3 figures are quoted for 100 mm. diameter pipes made with cement from Voskresensk factory and matured under water at 50° for 3.7 and 14 days. Gas permeability was determined after 15 days when all the pipes attained approx. the same degree of humidity. The tensile strength and other properties were tested after 60 days exposure.

Table 3.

Period of maturing days	Thickness mm.	Gas permeability $\frac{l/m^2/hour}{atm.}$ at			Density gr/cm^3	Water absorption %	Ultimate tensile strength kg/cm^2
		5 atm.	8 atm.	12 atm.			
3.7	13.0	155	124	681	1.57	23.7	111
14	13.7	39	27	141	1.60	23.3	125
14	11.0	25	17	108	1.53	22.9	152

The experiments confirm the necessity of maturing gas main pipes submerged in water (5 - 7 days depending on the properties of the cement). Steaming of pipes did not give positive results.

The results of above experimental work allow to draw the conclusion that asbestos-cement pipes with increased density (not less than 1.7 - 1.8 gr/cm^3 depending on the diameter) can be used without any additional treatment for laying gas mains in damp grounds or for transporting of humid oil gas up to a pressure of 5 atm. in oil fields.

Before putting the gas mains in operation it is advisable to soak them by filling for a short period with water, which is the practice in Hungary, or let through them saturated steam.

The pipes to be laid in dry ground have to be treated in order to increase their gas impermeability.

One such treatment is based on the impregnation of pipes with paraffin - residues from the distillation of crude oil. This method, which was suggested by Ufim Scientific Research Institute (UFNII) is successfully applied by Ishimbayevsk oil fields in Bashkir ASSR where some gas mains were laid down using asbestos-cement pipes of water main type.

For impregnation the following procedure is recommended: pipes are warmed in special containers to a temperature of 40° by hot air; impregnated for 6 hours in a bath with paraffin residues and warmed up to temperature of 80°. This is followed by stacking of pipes on a grating for cooling and drainage of surplus paraffin. NII Asbestos-cement is also experimenting with coating of the pipe's inner surfaces with the film forming enamels, introducing of impermeable substances between the top asbestos-cement layers, etc.

Operational efficiency of asbestos-cement gas mains depends to some extent on the type of couplings employed. Analysis of numerous types of couplings showed that at present the most reliable is "GIBAULT" coupling.

Relying on the works of Institute NII Asbestocement, VNII gas, VNIIS and VNII and also on results obtained at testing experimental lots of pipes made by "Krasny Stroitel" group, a large gas main of asbestos-cement pipes, manufactured by Sukoloshk asbestos-cement factory, is in process of construction.

These pipes have 456 mm. diameter and the density 1.70 - 1.75 gm/cm³. "Gibault" couplings are sealed by rings based on synthetic rubbers "Neirit" and SKN - 26.

Pneumatic tests indicate that at an operational pressure of 5.5 atm. drop of the gasmain's air pressure amounts to not more than 0.3 atm. About 15 km of such gas-main were put into operation last year. In 24 hours up to 500,000 m³ of oil gas was pumped, which before was burned on oilfields.

During the current seven-year plan, asbestos-cement pipes must become a full-value substitute for the steel ones.

Both the experimental and the initial operational results indicate that asbestos-cement gas mains will find wide application in the growing oil-gas industry of our country.

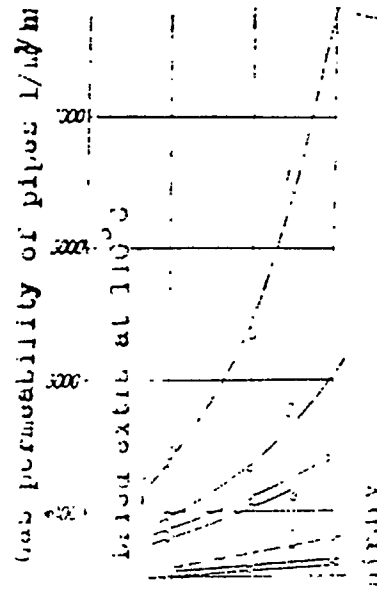


Fig. 1. Gas permeability of pipes made by "Krasnyy Krasnitsa".
Diam. of pipes: 100 mm. 1-4 atm.
1-12, 2-8, 3-4 atm.

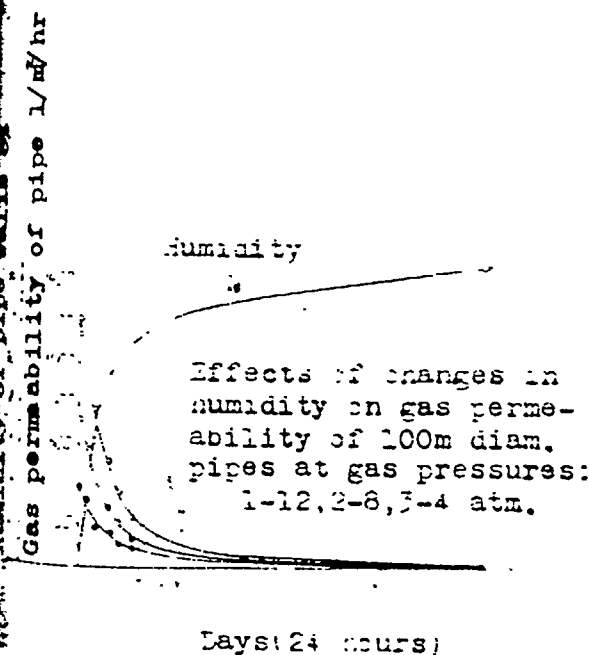


Fig. 2. Exposure of pipes in moisture saturated air

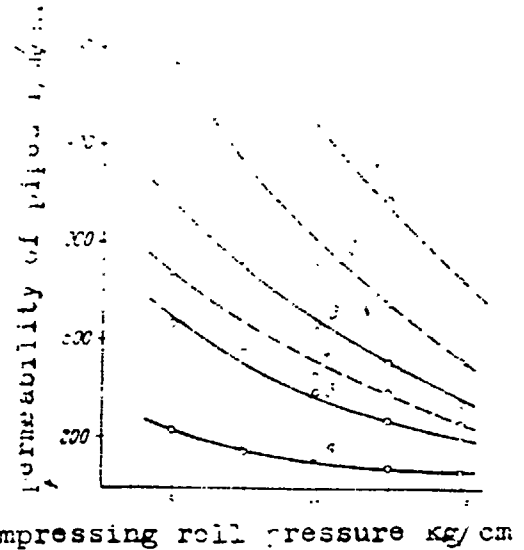


Fig. 3. Curves 1, 2, & 4 show gas permeability at gas pressures 12; 8 & 4 atm. after 90 days, curves 3; 5 & 6, the same for pipes after 20 days

PART 3. ASBESTOS TEXTILES.

473. B.P. 832,054. PRODUCTION OF STUFFING BOX PACKING.
Frankfurter Asbestwerke Paul Kind K.G.

Loose fibres asbestos and cotton or viscose staple are mixed prior or during carding process with a solid lubricant (graphite, talc, mica, molybdenum disulphide, lead dust) and a binder (acrylonitrile, isoprene, rubber, polyvinyl acetate) spun into yarn and woven, knitted or plaited into stuffing box fabrics.

474. U.S.P. 2,948,641. FLAME RETARDING COMPOSITION AND FABRIC TREATED THEREWITH. Thermoid Company, Trenton, N.J.

A flexible, resilient, flame and heat retardant fabric comprises an asbestos-base material coated with a fluoroborate salt (1%), mica (0.75%) and a plasticiser (1%).

475. FIRE SEALS. Materials in Design Engineering. 1960, 52, No. 5, p. 35.

Illustration showing the application of Vitex-coated asbestos fabric as a fire seal in the wings of the new B-58 "Hustler" plane. It is claimed that this fabric resists ozone, jet fuels, fumes and corrosion and is equivalent to stainless steel in fireproofing qualities.

476. PROTECTIVE CLOTHING AGAINST FLAMES AND HEAT. Fire Research Special Report No. 3. (Stationary Office, 3/-s).

The danger that the material of the suit may break down under excessive heating is mentioned. Asbestos "cloth", the report notes, often has a cotton base and tends to become brittle on heating, and glass-fibre cloth melts and becomes brittle before 600°C. Fire resistant treatments, although they increase the resistance to flaming do not prevent disintegration.

477. ISOTAPES HEATING TAPES

Made by Isopad Ltd., of Boreham Wood, Herts, consist of glass cloth which forms the main carrier for heating tapes, and asbestos which is used in the production of the actual heating elements and as stitching yarn.

478. WATERPROOF AND OIL-RESISTANT ASBESTOS FABRIC. Gummi und Asbest. 1960, 13, No. 9, p. 775.

A new asbestos fabric has been developed in Gt. Britain; it consists of an asbestos fabric and an aluminium foil joined together by means of a synthetic resin. The product is resilient and can be combined with various textile materials.

479. U.S.P. 2,947,328. ASBESTOS DRYER FELT. Aston-Hill Mfg. Co.

A 3-ply felt having a total of 60 ends and 30 picks was woven employing in the surface ply as both warp and filling a yarn plied with 10 turns S ply twist from two 13 cut yarns spun from 75% asbestos 25% polyester fibre blend and having 12 turns of Z twist. In both the intermediate and backing plies as filling a 7 cut 5 turn S yarn of asbestos wrapped around a core of 2 ends of 10 count cotton; and as warp in both intermediate and backing plies a yarn plied with 3 turns S twist from 3 strands of 8 count cotton. It is claimed that this felt was relatively inexpensive to manufacture and was more satisfactory in strength and durability than a comparable felt constructed of asbestos and cotton alone.

480. B.P. 851,715. MOISTURE-RESISTING INSULATING MATERIAL. General Electric Co.

An excellent insulation structure of improved electrical properties, mechanical strength, thermal stability and moisture resistance is produced by initially impregnating an inorganic base asbestos cloth with an organic resin which serves as reinforcing binder and imparts high dielectric and mechanical strength and then enveloping it with a coating of silicone resin which complements the properties of organic resin impregnant and imparts improved resistance to oxidation and moisture.

PART 4. ASBESTOS FRICTION MATERIALS.

481. TEMPERATURES REACHED IN DISC BRAKES. T.P. Newcomb. Journal of Mech. Eng. Science, Sept. 1960, pp. 167-177.

A solution is given to the problem of the conduction of heat through an infinitive slab bounded by parallel planes. This solution can be used to determine the transient temperatures reached during disc braking. Both cooled and uncooled brake discs are considered. The problem of repetitive braking at regular intervals is also discussed and comparison is made between the disc brake under similar conditions.

482. SELF-LUBRICATING BEARINGS. P. Long. Eng. Mat. & Design, 1960, 3, No. 10, pp. 626-632

Mintex fluoro-carbon surfaced bearings based of Teflon fibres are described. Asbestos-reinforced phenolic laminates and their use in rolling mills and for rudder and stern tube bearings are also discussed. Mintex M6H (British Belting & Asbestos Ltd.) is mentioned as an example of a water-lubricated bearing material of felted asbestos reinforced cresylic resin which is easily machined, readily wetted, capable of accommodating high local loading, and which may be used as a direct replacement for lignum-vitae. Other Mintex materials are impregnated with oil or graphite either singly or in combination and are self-lubricating.

483. HARD ON THE BRAKES. The New Scientist, 1960, 3, No. 205, p. 1062.

The trials were arranged by the research division of Ferodo Ltd., to investigate the conditions in which coach brakes may have to work when the vehicle, with full complement of passengers, is travelling across mountainous areas. It has been found during one long descent lasting 1 hour that drum temperature remained at 375°C. for practically the whole time. On this test the engine was in third gear and the energy was dissipated in equal parts by engine and brakes. On a repeat test with the engine in the second gear the proportion of the energy dissipated by the brakes was only 30% and the drum temperature did not exceed 270°C.

484. RAILKO DRY BEARINGS. Automobile Engineer 1960, 50, No. 10, p.410.

Railko Co., in collaboration with Small & Parkes Ltd., have developed a base material for bearings containing Teflon fibres in the fabric forming top laminate.

Asbestos was chosen as the most suitable yarn for the purpose of its resistance to heat and excellent wearing properties in unlubricated application. Using phenolic resins for the impregnation no difficulty is experienced in obtaining a completely reliable bond to backing. Frictional tests were carried out on yarns containing various proportions of PTFE fibres. It has been found from the price/performance point of view that the yarn containing 20% of PTFE fibres gives most satisfactory results.

485. MACHINING BRAKE DISCS. Automobile Engineer. 1960, 50, No. 10, p. 428.

Muller fully automatic production line for machining brake discs is described.

486. BONDING BENEFITS BRAKES. C.M. Powis. Commercial Motor, 1930, 112, No. 2569, pp. 46-47.

Three adhesive systems for bonded brake lining are offered by CIMA (A.R.L.) Ltd., for bonding brake lining, which have to operate over a wide range of temperature.

487. PHENOLIC LAMINATE REPLACES CAST IRON. Materials in Design Eng. 1930, 52, No. 3, p. 190.

A switch from gray iron castings to moulded asbestos-reinforced phenolic laminate has resulted in reduced costs and a longer life of brake assemblies used on earthmoving equipment.

488. B.P. 834,188. FRICTION MATERIAL COMPOSITION. Armstrong Cork Co.

A suitable composition for clutches and brakes, comprises a sheet formed of water laid mass of natural fibres (asbestos, cotton linters) 30-70%, cork to 50% and an oil resistant synthetic rubber (butadiene acrylonitrile) and rubber 20%.

489. B.P. 1241,817. IMPROVEMENTS IN BRAKE ASSEMBLIES. General Motors Corp.

An asbestos lining, consisting e.g. of asbestos fibres (60 parts), cotton linters (20 parts), and cashew nut oil resin (20 parts) bonded together with a phenol formaldehyde binder.

490. U.S.P. 3,910,449. BRAKE SHOES FOR RAILWAY VEHICLES. Westinghouse Air Brake Co.

Long service life brake shoe may consist of:-

Unvulcanized powdered rubber	4 to 10% by weight
Phenol-formaldehyde resin	8 to 15% "
Asbestos fibre	12 to 20% "
Carbon Black	0 to 10% "
Cast iron chips	60 to 75% "

491. German P. 1,062,005. FRICTION MATERIALS. FAG. Presswerk A.G.

Example of the Composition:

40% (weight)	Asbestos
25%	" Steelwool
10%	" Synthetic rubber
0.5%	" vulcaniser
3%	" Aluminium oxide
6%	" Magnesium oxide
0.5%	Ammonium phosphate

492. German P. 1,087,803. BRAKE OR OTHER FRICTION LININGS.
Westinghouse Air Brake Co.

Friction lining, based on asbestos, metal turnings and phenol-formaldehyde resin binder, comprises 4-30% non-vulcanized natural rubber or synthetic butadiene-acrylic nitrile rubber, 8-15% phenol-formaldehyde resin, 12-20% asbestos fibres, and 60-70% cast iron turnings.

PAGE 5. REINFORCED PLASTICS

493. ASBESTOS: GENERAL. MINING, PROCESSING. COMMUNICATION 22.
Gummi und Asbest, 1960, 13, No. 10, 830, 832, 835, 838, 840, 842.

The use of elastomers as binders for asbestos materials is discussed in detail. Data of mechanical strength of asbestos papers produced with the use of elastomer emulsions are tabulated (polychloropren and vinylidene fluoride-hexafluoropropylene, "Viton", have been used). The products are used mainly for packing purposes and as friction materials. "Viton" and "Hypalon" - asbestos products are described in detail ("Hypalon" is Du Pont's chlorosulphonated polyethylene). "Hypalon"-asbestos is used for packings, cylinder heads, pump casing columns etc. Also the use of phenol resins, aminoplasts, silicon-resins and rubber, as binder for asbestos is described in detail. Properties of British, Russian and Czech asbestos-phenol resin laminates are compared, and so are the characteristics of various asbestos-silicon resin laminates. A list of patents relating to the use of different binders for asbestos products is given.

494. NEW SILICONE RESIN FOR ASBESTOS BOARDS, PAPERS & COATING.

ASB is a new Wacker & Chemie G.m.b.H. silicone-base binding agent developed for use in the production of asbestos boards, papers, pressings and coating with high water repellence and mechanical, thermal and electrical resistance.

It is claimed that thermal and water resistance of the silicone-treated asbestos remains practically unmodified after heating at 250°C for 24 hours, or immersing in the water for the same period.

495. ASBESTOS NITRILE GASKET. Missile Design & Development. 1960, 6, No. 8, p. 61.

Vellumoid Co., Cambridge 40, Mass. gasket material has high resistance to oil and fuels and can be used up to 350°F.; long fibre asbestos dispersed throughout nitrile base.

496. B.P. 833,800. RESIN-IMPREGNATED ASBESTOS SHEET LAMINATE. Midland Silicones Ltd.

Laminate suitable for the manufacture of air ducts, instrumental panel boards, insulators, aircraft sections and skins is made by impregnating the asbestos felt (Can. Crude No. 1, iron content less than 2%) which may be supported on a glass carrier cloth, with organosiloxane copolymeric resin, precuring the impregnated felt to an extent that it is tack-free at room temperature, but thermoplastic at 150°-200°C, is subjecting assembled plies to heat and pressure, and after curing the laminate at gradually increasing temperatures.

497. B.P. 842,760. UNSATURATED ALKYD MOULDING COMPOSITIONS. Allied Chemical Corp.

Alkyd moulding composition consists of an unsaturated alkyd binder resin (such as unsaturated polyesters), a filler (e.g. asbestos, calcined asbestos, asbestos coated with a melamine-formaldehyde resin, glass fibres, clay, etc.), and a polymerisation catalyst (e.g. an organic peroxide or ozonide).

498. B.P. 843,437. FIBRES AND LAMINATES. Standard Telephone & Cables Ltd.

Tubes and laminates prepared from fabric, e.g. glass, asbestos, etc., impregnated with a mixture comprising unsaturated polyester and a monomer. The formed fabric is subjected to ionising radiation to solidify the mixture.

499. Russian P. 129,815. PRODUCTION OF MELAMINE-FORMALDEHYDE RESINS. E.S. Potekhina et. al.

Resins of improved stability and heat resistance are obtained by condensing melamine with formaline and furfural and by introducing triethanolamine into the condensation product. The resin can be mixed with other components and lubricating substances either in emulsion or in dry state. A composition which can be used for the production of moulding materials consists of the resin (40-49%), serpentine asbestos (24.5-29%), talc (24.5-29%) and calcium stearate (2%).

PART 6. ASBESTOS JOINTING, SEALING AND COATING COMPOSITIONS.

500. B.P. 835,874. PUTTY COMPOSITIONS. Hardman & Holden Ltd.

Asbestos mentioned as a filler.

501. PLASTIC GLAZE.

Corrosion Ltd., of Southampton, Hants., has developed a new plastic glaze called Polytile, which may be applied by brushing or spraying to most types of constructional materials such as plaster, cement, and asbestos board. It is claimed to have a remarkably high degree of resistance to humidity, chemicals, solvents, fats and greases, and to be heat resistant up to 200°C.

502. ONE-COAT FINISH.

Montgomerie, Stobo & Co., Ltd., of Deaside, Saltney, Nr. Chester, are producing a one coat stone finish known as Colpro. This is among others applied to asbestos-cement sheeting. It is claimed that one coat not only decorates but waterproofs and gives excellent stone effect in a choice of pastel shades and white. The finish can be applied to damp surfaces, it is said, without fear of subsequent flaking and peeling. Application can be by brush or roller, but it may also be sprayed through a suitable gun.

503. B.P. 835,027. PLASTIC COMPOSITION. Evomastics Ltd.

A putty-like composition, suitable for sealing, caulking or glazing comprises in one form G₁R latex (0-20), blown castor oil (90-140), polypale resin (50-110), paraffin wax (0-10), asbestos fibre (50), pigment (50), and kaolin clays (300).

504. U.S.P. 2,939,794. COATING COMPOSITIONS. Texaco Inc.

A coating composition for protecting wooden structures such as utility poles, railroad ties etc., may consist of the following ingredients:-

Asphalt	43.5%	by weight
Asbestos fibre	10	"
Mica	10	"
Vermiculite	10	"
Dorax	5	"

505. German P. 971,822. (a delayed publication). MATERIAL FOR FILLINGUP GAPS BETWEEN CONCRETE SLABS. Poeschl, Chemie und Isolierstoffe G.m.b.H.

The filling material is made from phenolic resin (30%), and fillers (about 60%) with addition of zinc oxide, and diluent and wetting agents. Asbestos fibres (or powder) are also added.

ASBESTOS BULLETIN

122.

506. German P. 1,086,113. WELDING ELECTRODES COMPOSITION.
Gebr. Bohler & Co. A.G.

The composition consists of 15-37% fluorspar, 6-35% titanium dioxide, 10-50% iron or steel powder, up to 25% of quartz, silicates, asbestos, kaolin or feldspar, the above various alloys.

507. German P. 1,086,502. COMBINED HEAT AND CORROSION PROTECTION FOR PIPES. Chemieprodukte G.M.B.H.

Parts of pipe insulation are joined together and attached to the pipe surface by means of a plastic mass of the following composition: 60 parts (by wt.) petrolatum, 10 parts asbestos fibres, 1 part polyisobutylene, 2 parts highly viscous mineral oil or castor oil, 22 parts bentonite.

508. PACKINGS. Nebosky, J. Gummi und Asbest, 1960, 13 p. 824.

Packing construction and materials are discussed.

509. HOW TO SELECT THE RIGHT GASKET MATERIAL. Whalen, J.J.
Prod. Eng. 1960, 31, No. 41, pp. 52-53.

Four steps are outlined: 1) calculate the total bolt force, 2) select a material that will seat, 3) check the hydrostatic end force, and 4) specify the flange surface finish.

510. ASBESTOS FILLERS. Mat. in Design Eng. Oct. 1960, p.288.

Carey-Canadian Mines Ltd., has introduced two new asbestos materials for reinforcing plastics. The fillers are called 7RF-9 and 7TF-8.

PART 7. PLASTIC BUILDING MATERIALS AND PIPES.

511. PLASTIC PIPE REINFORCED WITH ASBESTOS RESISTS TEMPERATURES TO 300°F. Chem. Processing, 1960, 23 No. 4, p. 95.

Short note about Johns-Manville product suitable for service with alkali, solvents, or mild acids. Asbestos content of this phenolic or epoxy pipe approaches 50%.

512. FACTORS AFFECTING THE BURSTING BEHAVIOUR OF HARD P.V.C. PIPE AT ELEVATED TEMPERATURES. A.A. Van Der Wal. *Plastics*, 1960, 25, No. 275, p. 361.

The increase in the heat distortion temperature of P.V.C. pipes increases their bursting strength at 60°C.

513. PROGRESS IN POLYTHENE PIPES. *Pipes & Pipelines*. 1960, 5, No. 10, p. 42.

The advantages of polythene over conventional materials are discussed.

514. GLASS-FIBRE REINFORCED CONCRETE PIPES. *Engineer* 1960, 210, No. 5457, p. 361.

The use of glass fibre reinforced coating on concrete pipe is considered.

515. THE EXTRUSION OF HIGH DENSITY POLYETHYLENE TUBING. D.J. Schmidt. *SPE Journal* 1960, 18, No. 5, p. 505.

Equipment and extrusion technique are described.

516. CHEMICAL RESISTANT PLASTIC PIPES. *Materials in Design Eng.* 1960, 52, No. 3, p. 256.

Cornelius A. Rauch & Asso. Inc. of Akron 13, Ohio, is producing a new type of pipe made of glass reinforced furane. It is claimed that it can carry hot corrosive liquids and gases at temperatures up to 300°F. and at pressures up to 150 psi.

517. HOW TO MAKE CONTINUOUS REINFORCED PLASTIC PIPE. D. Henis. *Modern Plastics*. 1960, 38, No. 1, p. 119.

Novel system of collapsing mandrels permits production of endless pipe. Mention is made of a use of composite glass-asbestos tape material.

518. B.P. 850,562. RIGID P.V.C. PIPE ELEMENT. *Compagnie de Pont-a-Mousson*.

P.V.C. pipe has at least one end of cylindrical body a screw threading of constant wall thickness, protruding externally from the body.

519. PLASTIC PIPES. Chemical Engineering. September 5, 1960, p.74.

Pipes made from Dion-Iso DR-661, a new isophthalic resin are designed to operate in continuous duty up to 350°F and easily handle solvents, acids and alkalis. Pipes are available in 4, 6, 8, 10 and 12 inch diam., and are recommended for municipal water supplies, food, mining and petroleum industries.

520. Austrian P. 202,203. COMPOSITE STRUCTURAL ELEMENTS.
H. Hoschl, Villach.

Structural elements consist of light panels, in particular wood-fibre panels, provided with an external layer comprising mineral fibres, such as asbestos, glass or slag wool etc., coated with vulcanised caoutchouc, or other rubber preparations.

521. French P. 1,166,447. WALL PANELS. Etablissements Peyrpie.

Wall panels are formed under pressure and at an elevated temperature from a pasty mixture of synthetic resin, mineral additives, organic or mineral fibres, and coloured pigments.

522. HIGH QUALITY MOISTURE-IMPERMEABLE ROOFING MATERIAL.
Jianzhu cailiac gongye, 1958, No. 14, p. 25. (In Chinese)

Production and characteristics of Chinese roofing material made from asbestos felt, bitumen and cotton fibres are discussed.

- up 523. PLASTICS IN FOOTING. British Plastics, 1960, 33, No. 10, p. 442.

A review of materials, methods and machines.

524. VINYL IN FLOORCOVERINGS. J.C. Wells. Fibres & Plastics. 1960, 21 No. 10, p. 300.

A discussion on the formulation, properties and recent developments in Vinyl floorcoverings.

625. PLASTIC ROOFING. The Financial Times, 1960, October 19th.

A new polyvinyl chloride plastic material has been developed for use in the production of transparent corrugated units, or opaque sheets. Tests which have been carried out with the new material are said to have shown that it is exceptionally well suited for roof-lighting purposes and similar architectural applications. The material is said to have both high strength and excellent light transmission and it can be produced readily in a wide variety of different types of profiles, or shapes.

626. COLOUR FOR PLASTIC FLOORING. C. Magrave. Fibres & Plastics, 1960, 41, No. 10, p. 20.

Colours for plastic floorings such as rigid and semi-rigid vinyl tiles, flexible vinyl tiles, coumarone/indene tiles are discussed.

627. B.P. 650,922. CHLORINATED POLYMER FLOOR TILE COMPOSITION. Dow Chemical Co.

A composition for a plastic floor tile comprises Chlorinated polyethylene (12) parts, Dioctyl Phthalate plasticizer (4), Short asbestos fibres (25), No. 18 graining sand (12), Whiting- CaCO_3 (35), Titanium dioxide (3), stabilizer di-t-butyl Lead Phosphite (1). Plastic floor tile prepared with such composition satisfactorily meets or exceeds such commonly accepted standards as the Asphalt Tile Institute Specifications for Vinyl Asbestos Tile.

628. B.P. 651,489. DECORATIVE VINYL FLOOR TILES. Marley Tile Co.

A decorative pattern is printed on the surface of translucent vinyl chloride polymer sheet using an ink consisting of a solution of vinyl chloride polymer or copolymer and a pigment. This is then laminated with a supporting lamina under pressure and heat without any assistance or use of additional adhesive.

629. French P. 1,155,727. INSULATING FLOORING. Etablissement Plastitect.

Insulating flooring is formed from a bitumen emulsion containing a synthetic resin, and additives such as ground asbestos, cork, etc. Example: 2.250 kg. of 60% bitumen emulsion, 0.360 kg. polystyrene, 0.172 kg. cork, and 1.550 kg. asbestos powder, are thoroughly mixed together, compressed and air-dried.

PART 8. ASBESTOS PAPER AND INSULATING MATERIALS.

530. WARM AIR DUCTING.

T.P.T. Construction Products Ltd., of Romiley, Cheshire, is making a range of light-weight fibre tubing for warm air ducting: Soncair-duct-XP pipe is lined inside with aluminium foil and on the outside with asbestos. Such construction provides increased insulation, which reduces heat loss through the duct wall. The tubing is available in sizes ranging from 2-36 inches in diameter and up to 15 ft. in length.

531. CALSILITE-HI Chem. Eng. 1960, 67, No. 20, p. 64.

Thermal insulation that withstands up to 2,800 F. is provided by calcium silicate combined with asbestos fibres and other materials. Effective for fireproofing walls, partitions, piping and equipment in all types of plants, Calsilite-Hi keeps its strength when wet and resists most chemicals. (entire extract).

532. APPLIED SILICONE INSULATION. E.D. Rowlands.

A mention is made of the use of asbestos roving, tape and mill-board in electrical applications.

533. ASBESTOS INSULATION BOARD.

Cape Building Products Ltd., of Cowley Bridge Works, Uxbridge, Middlesex, have developed a new grade of non-combustible Abbestolux for cladding steel columns and beams. This material is used in conjunction with cover fillets which are inserted at cross joints to prevent flame penetration at these points.

534. Italian P. 504,949. PRODUCTION OF DIFFICULTLY INFLAMMABLE HEAT-INSULATING MATERIALS. F. Passig and L. Carmignani.

The material consists of two sheets (one plain and one corrugated) which are bonded together. Both sheets are made of paper pulp and short-fibre asbestos, the asbestos content being higher than 50%.

535. B.P. 846,537. THERMALLY-ACTUATED CONTROL DEVICE. Landis & Gyr A.G.

Asbestos fibres impregnated with silicone laquer may be used for the support and insulation of a heating coil in a specified thermally-actuated control device.

536. German P. 1,086,615. KILN WALLS. Antonia Misburger Portland Cementwerk.

Heat insulation for kilns, e.g. cement rotary kilns, consists of a layer of asbestos surrounded by a sheet or a wire netting.

537. U.S.P. 2,949,953. PIPE INSULATION. V. Di Maio and N.T. Miller.

New method of manufacture pipe insulation from glass fibres or asbestos.

538. U.S.P. 2,935,147. SOUND ABSORPTIVE STRUCTURE. National Gypsum Co.

A typical formulation for an accoustical plaster is as follows:

Hydrate lime	89½ lbs.
Asbestos fibre	10 "
Sodium sulphate	
(foaming agent)	"
Water	140 "

The sound absorption characteristics of wall panels of hydrated lime and asbestos fibres can be changed by changing the density of the mix without altering the appearance of the surface.

PART 9. REFRACTORY FIBRES.

539. SINTERED METAL FIBRES. Eng. Mat. & Design, 1960, 3, No. 10, p. 625.

The new technology developed by Illinois Institute of Technology is centred around the basic process, in which metal fibres are felted as in paper making and the felted fibres then sintered as in powder metallurgy. Products made from metal felted fibres range from filters and battery plates to fragmentation armour and rocket nozzles.

PART 10. MISCELLANEOUS.

557. POROUS GLASS. F.G. Wihsmann and G. Solov. Silikattechnik. 1960, 11, pp. 348-352.

Production and applications of foam glass are described, and physical properties of foam glass (apparent density, heat conductivity, compressive strength and water absorption) are compared with those of other porous materials, incl. asbestos cement.

558. BEATER SATURATION EXHAUSTS TEFLON ONTO ASBESTOS. Anon. Chem. Eng. News. 1960, 38, No. 33, p. 64.

A short note about Armstrong Cork Co.'s "Fluorocarbon Accopac" asbestos sheet material with electron micrographs of Teflon-asbestos mixtures.

559. SPECIAL MAGNESIA CEMENT WITH CALCINED ASBESTOS. Sho-ji Oki and Sadashi Sato. Gypsum & Lime (Tokyo) March 1959, No. 39, pp. 303-308. (in Japan., English summary).

When asbestos is heated for 2½ hrs. at 650°, MgO and SiO₂ are separated; heating at still higher temperatures or for a longer period of time results in recombination of MgO and SiO₂ with the formation of enstatite, MgO.SiO₂. Calcined asbestos (40%) and MgO (60%), obtained from dolomites, give together magnesia cement.

560. EFFECT OF FILLERS ON THE MELTING POINT OF CRYSTALLINE POLYMERS. V.A. Kargin and T.J. Sogoleva. Vysokomolek. Soedin. 1960, No. 7, pp. 1093-1096.

The addition of the filler not entering into chemical reaction with the polymer (e.g. coke, asbestos powder, etc.) does not shift the melting point of the polymer, but changes its mechanical properties.

561. FOAMS, RESINS ARE SELF-EXTINGUISHING. Materials in Design Eng. 1960, 52, No. 3, p. 254.

News item about work done at Dow Chemical Co., on resins based on chloromethylated diphenyl ether. It is reported that this resin has a very low charring rate when filled with asbestos.

562. THE CRYSTAL CHEMISTRY OF THE AMPHIBOLES. E.J.W. Whittaker.
Acton Cryst. 1930, 15, pp. 291-8.

563. B.P. 838,882. MOULDING CONCRETE RAILWAY SLEEPERS.
Dow-Mac Ltd.

New method of moulding.

564. U.S.P. 2,945,831. DISPERSIONS OF ORGANIC POLYMERS AND
CHRYSOPILE ASPBESTOS. E.I. du Pont de Nemours & Co.

The process of preparing chrysotile asbestos polytetrafluoroethylene films consists essentially of blending an aqueous colloidal dispersion PTFE with an aqueous colloidal dispersion of negatively charged chrysotile asbestos fibres, spreading the resulting blend in the form of a film on a substrate, drying and heating to above 327°C to coalesce the film.

565. U.S.P. 2,945,926. ABRASIVE WHEEL. Cincinnati Milling Machine Co.

Resin-bonded abrasive grinding wheels may be moulded from the following composition:-

24-grit Al_2O_3	1070 grams
Solution of 20% acrylic acid and 80% furfural	40
Powdered resin (Resinox 795)	321
Short fibre asbestos	132
Water	144
Powdered resin (Bakelite 2417)	325
Short fibre asbestos	123.3

566. U.S.P. 2,944,911. ACETYLENE CONTAINER FILLER COMPOSITION.
Acetylene Cylinder Corp.

An acetylene container composition consists of charcoal and fibrous asbestos dispersed and set in a silica-lime product. Asbestos cement is 20-30% by weight of solids.

567. U.S.P. 2,952,951. ABRASIVE MATERIALS. H.A. Simpson.

Woven or unwoven natural fibres such as asbestos may be employed as a carrying fibrous medium.

568. U.S.P. 2,949,698. RESILIENT PERMANENT PAD. Midwest Insulations Inc.

Pads spread on the ground around trees or shrubs for the purposes of preventing the evaporation of moisture from the soil, and of protecting the roots from extreme heat or cold, are made from mineral wool fibres coated with a phenol-formaldehyde bonding agent.

539. EVALUATION OF ASBESTOS FIBRES

Test Procedures compiled by Asarco Central Research Laboratories, South Plainfield, N.J.

CONTENTS

- | | |
|-----------------------------|-----------------------------------|
| 1. SAMPLING | 8. AIR PERMEABILITY |
| 2. FIBRE LENGTH | A. Fira |
| A. Quebec Standard Screen | B. Dyckerhoff System |
| B. Bauer-W/C Matt | 9. FILTRATION OR FREEDNES |
| C. Ro-Tap Sieve Analysis | 7. OIL ABSORPTION |
| D. Suter-Webb Length | 8. ROCK AND SPICULES |
| distribution | 9. COLOUR |
| E. Dust Content - Dry Test | 10. MOISTURE |
| 3. BULK AND DENSITY | 11. DETECTION OF FOREIGN MATERIAL |
| A. Wet Bulk Density | 12. POTENTIAL INDEX |
| B. Dry Bulk Density | 13. ASBESTOC CEMENT FIBRE TEST |
| C. Wet Cake Weight | 14. TENSILE STRENGTH |
| 4. VISCOSITY | 15. MAGNETIC RATING |
| A. Viscosity MacMichael | |
| B. Clarvoe Penetration Test | |

ASBESTOS BULLETIN

102

PART 11. REVIEW OF JOURNALS

ASBESTOS (September 1960)

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

570. MARKET ASBESTOS. W.E. Sinclair. pp. 2-10.

Trading, grading, classification, storage, selling conditions, asbestos products are discussed at length.

U.S. BUREAU OF MINES, p. 12.
50th Anniversary.

572. CHRISILITE - Hi, p. 20
The Rubberoid Co., calcium silicate asbestos thermal insulation is reviewed.

573. MARKET CONDITIONS, pp. 30-34.
A review.

574. PRODUCTION STATISTICS, pp. 36-44.

ASBESTOS (October 1960)

575. THE LIFE OF ASBESTOS. W.E. Sinclair, pp. 2-10.

576. ASBESTOS TEXTILE INSTITUTE, pp. 12-14.

577. MARKET CONDITIONS, pp. 30-32.

578. CYPRUS ASBESTO MINES LTD.
The use of rippers and heavy duty bulldozers for quarrying has practically eliminated the need for recourse to explosives. During 1950 production amounted to 7,450 tons of long grade and 5,428 tons of short grade fibres compared with 8,955 tons and 5,722 tons respectively in 1958.

579. PATENTS, p. 56.
Abstracts of 5 U.S.A. patents.