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

Vol.3. No.5

September - October, 1962

Editor - C. Z. Carroll-Porczynski

C O N T E N T S.

Part 1. MINING.

CANADA.

475 QUEBEC ASBESTOS INDUSTRY: TESTING AND QUALITY CONTROL. J.P. Wiser. Can. Mining Met. Bull. June 1962, 55, No.602, pp. 403-405.

General article by a milling consultant for Lake Asbestos of Quebec Ltd.

476 QUEBEC ASBESTOS INDUSTRY: MINING AND MILLING. J.L. Gartshore. Can. Mining Met. Bull. June 1962, 55, No.602, pp.400-401.

General article by the mill superintendent of Canadian Johns-Manville Co. Ltd.,

477 GEOLOGY OF STEELE, BONIS AND SCAPA TOWNSHIPS, DISTRICT OF COCHRANE. S.B. Lumbers, Ont. Dept. Min. Geol. Rep. No.8, Toronto, 1962, 50 pp.

Mineral occurrences in this district include asbestos.

478 AN ASBESTOS PROSPECT IN CLEVELAND. Eng.Mining J. Aug. 1962, 163, No.8, p.174.

An asbestos prospect in Cleveland Twp., 7 miles south of Asbestos, is being drilled by Bornite Copper Corp. An asbestos-bearing zone has been traced for a length of 3000 ft. with width up to 800 ft.

479 PRELIMINARY REPORT ON PORT-LA-PEROUSE-NORMAN POINT AREA (Port Harrison-Hopewell Point). New Quebec. S.M. Lee. Prelim. Re. Quebec. Dep. Nat. Resour. Geol. Surv. No.445, Quebec, 1961.

General and structural geology are described. Mineral occurances include asbestos.

480 PRELIMINARY REPORT ON CHANDLER-PORT DANIEL AREA, BONAVENTURE AND GASPE-SOUTH COUNTIES. W.G. Ayrton. Prelim.Rep. Quebec Dep. Nat. Resour. Geol. Surv. No.447, Quebec, 1961.

Mineral occurences include asbestos.

481 SYMPOSIUM ON CANADIAN EXPLORATION. H.H.Heustis. Can.Mining J. 1962, 83, No.8, p.50.

Among the major mineral discoveries made in Canada's Pacific North-west during recent years the following are listsd:-

1) Cassiar asbestos mine staked by four prospectors who sold it to Conwest Exploration Co.

2) Asbestos Southeast of Atlin, found by prospector Steve Papp.

3) Letain asbestos deposit, found by prospector Felix Letain.

482 MURRAY MINING. Can. Mining J. 1962, 83, No.7, p.102.

Asbestos Corp. Ltd., and Murray Mining Corp. Ltd., announced recently that they had concluded an agreement that will allow Asbestos Corp. to acquire a one-year option, renewable for another year, on Murray's two mineral exploration licenses at Asbestos Hill, Quebec. The agreement calls for Asbestos to spend a minimum of $500,000 in the first year, and a further $500,000 in the second year, if the option is renewed, on development of the asbestos property. The programme for the first year, now under way, provides for a detailed engineering study, to arrive at a firm capital cost for construction of a dock, access roads, power plant, townsite and mine and mill facilities. The existing air strip at the property is expected to be lengthened from 3,200 ft. to 5,000 ft. Additional exploratory diamond drilling is also being planned along the strike of the current fibre zone at the property. Asbestos Hill is 32 miles South of Deception Bay in Hudson Straits. (Entire abstract).

483 PRELIMINARY REPORT ON FRASER LAKE AREA, SHEFFORD & STANSTEAD COUNTIES. P. St.-Julien. Prelim. Rep. Quebec Dep. Min. No.439, Quebec 1961.

General and structural geology of the area are described with notes on copper, asbestos, Chromite and Magnetite occurences.

U.S.A.

484 COALINGA ASBESTOS FIBRES. Can. Mining J.1962, 83 No.8, p.45.

Description of a new asbestos mining and milling operation put into production stage early in 1962 by Coalinga Asbestos Co. Inc., in Fresco County, California. Group 7 chrysotile asbestos is extracted from zones of sheared serpentine within an ultrabasic intrusive. Various exploration techniques are discussed and mining and milling operations described.

485 MINING METHODS AND COSTS, REGAL ASBESTOS MINE. Jaquays Mining Corp. L.A. Stewart, U.S.Bur.Mines. Inf.Circ.No. 7986, 1961.

History, mining methods, etc., of the Regal Chrysotile asbestos mine, and two asbestos mills of Jaquays mining Corp., are described in detail.

486 MINING AND MILLING METHODS AND COSTS, VERMOND ASBESTOS MINES, THE RUBEROID CO., HYDE PART, VT. K.L. Burmeister & I.E.Matthews. U.S. Bureau of Mines Inform. Circ. 8068 (1962).

This report includes a description of the ore deposits, a brief history of their development, an outline of methods used, and a breakdown of available cost figures.

487 MOUNT EDDY AND SHASTA VIEW ASBESTOS DEPOSITS,SISKIYOU COUNTY, CALIF. K.Malone, W.T.Benson & A.L.Engel. Rep. Invest. U.S.Bur.Min. 5948, 1962, 29 pp.

A reconnaissance survey by the Bureau of Mines revealed asbestos fibre low in iron content and strength compared with Canadian Chrysotile asbestos. The fibres are very short and cannot be used in shingles or paper products, but might be useful for certain filler applications. A detailed description of the deposits is given.

RHODESIA & NYASALAND.

488 ASBESTOS EXPORT 1961. Mineral & Trade Notes 1962, 55, No.3, p.6.

Production of chrysotile asbestos in Southern Rhodesia reached a record 161,610 short tons valued £8,747,411 in 1961. Output in 1960 totalled 133,963 tons valued at £7,471,405.

Export 1961:

Czechoslovakia	10,924 tons.	
Poland	2,616 tons	
United Kingdom	75,853 tons	(Turner-Newall Ltd).
United States	1,745 tons	
Other countries	33,516 tons	

UNION OF SOUTH AFRICA.

489 MINING AT MAMBA HILL. S.Afr. Min. Engng.J., Johannesburg, 72, Dec.15,1961, 1407.

Notes on the African Chrysotile Asbestos Ltd., operations in the E. Transvaal close to the Swaziland border.

490 PRESIDENTIAL ADDRESS: MINERALS & METALS FOR SALE. D.G. Maxwell. J.South Afr.Inst.Min.Metall.Johannesburg 62 . Aug.1961.

South African resources and probable developments of various materials, including asbestos, are discussed.

491 EXPORTS OF ASBESTOS FROM THE REPUBLIC OF SOUTH AFRICA. Mineral Trade Notes, 1962, Vo.55, No.2. pp. 7-9.

Country of Destination.	1960 Short tons	1960 Value, SAL f.o.b.	1961 Short tons	1961 Value, R f.o.b.
Amosite				
Argentina.....	276	13,059	680	65,276
Australia	8,552	355,362	8,667	741,305
Belgium	1,200	51,495	890	74,356
Canada	1,[illegible]	90,743	1,200	118,296
Denmark	460	21,038	737	65,437
France	621	30,457	2,149	194,365
Germany	1,303	65,991	1,563	154,320
Italy	3,187	134,533	7,238	593,325
Japan	2,501	150,145	2,621	261,292
Malaya	75	3,300	600	52,800
Morocco	502	23,902	225	18,390
Netherlands	708	30,273	623	53,336
New Zealand	1,690	72,325	1,391	117,908
United Kingdom ..	27,028	1,152,458	23,024	1,987,456
United States ...	16,900	919,581	14,061	1,548,419
Yugoslavia	502	29,583	343	35,900
Other countries .	602	43,336	1,851	183,717
Total	68,187	3,186,581	67,803	6,245,598
Chrysotile:				
Argentina	909	53,474	856	101,768
Australia	4,697	272,444	4,510	523,211
Germany	3,677	267,390	3,100	459,686
Italy	937	59,116	1,012	112,397
Japan	362	20,385	774	96,511
Norway	1,059	49,538	810	91,237
Poland	71	10,590	1,441	145,801
Portugal	877	44,218	575	62,552
Rumania	-	-	882	87,969
Singapore	306	19,310	-	-
Spain	5,490	316,000	6,015	686,268
United Kingdom ..	3,265	61,587	3,409	181,468
Other Countries .	3,488	171,772	1,710	169,037
Total	25,338	1,345,824	25,094	2,717,905

Country of Destination	1960 Short tons	1960 Value, SA£ f.o.b.	1961 Short tons	1961 Value, R f.o.b.
Cape blue:				
Argentina	65	5,246	789	118,384
Belgium	5,165	366,616	5,150	723,138
Brazil	670	48,532	346	49,477
Bulgaria	1,370	90,018	-	-
Canada	2,200	166,965	1,265	192,500
Colombia	430	31,613	1,030	141,355
Czechoslovakia	35	2,215	563	84,098
Denmark	675	47,386	640	90,115
Egypt	2,734	204,750	1,326	194,796
France	5,036	335,460	5,193	658,006
Germany	6,150	430,012	6,169	868,479
Greece	200	15,200	1,100	160,585
Israel	346	27,940	550	84,875
Italy	7,348	577,104	9,992	1,534,953
Japan	10,238	624,173	13,700	1,619,290
Lebanon	550	38,637	800	113,600
Mexico	1,620	122,812	1,690	253,789
Netherlands	3,078	215,331	2,103	312,698
Peru	75	6,300	512	75,574
Spain	932	72,552	1,070	145,044
Switzerland	400	28,100	515	73,100
Thailand	500	38,119	800	117,052
United Kingdom	5,652	395,747	5,145	758,949
United States	13,270	1,072,207	11,605	1,818,854
Yugoslavia	957	73,466	627	101,298
Other countries	2,456	176,259	3,022	422,633
Total:	72,152	5,212,760	75,702	10,712,642
Transvaal blue:				
Canada	780	58,303	925	138,288
Czechoslovakia	636	42,475	1,745	209,727
Denmark	850	61,200	800	115,200
Italy	854	51,583	393	47,228
Japan	589	35,396	1,768	200,153
United Kingdom	1,436	92,605	1,539	189,819
United States	2,788	208,189	3,326	498,186
Other countries	1,189	79,609	1,529	196,252
Total:	9,122	629,360	12,025	1,594,853
Tremolite: Rhodesia	11	229	4	188
Grand Total:	174,810	10,374,754	180,688	21,271,186

Source: Replublic of South Africa Deptment of Mines Quarterly Information Circular, Minerals, October-December 1961 - Pretoria.

UGANDA

492 THE MINERAL RESOURCES OF UGANDA. J.W.Barnes, Bull. Geol. Surv.Uganda,No.4, Entebbe 1961.

Mineral resources of Uganda, known but not yet worked, include asbestos.

CHINA.

493 PRINCIPAL FEATURES OF ASBESTOS DEPOSITS AND THEIR GENESIS. Pen Sei. Dishi lunping, Geol. Rev. 1959, 19, No.11, 497-503, 491 (in Chinese).

PHILIPPINES.

494 RECOVERY OF ASBESTOS FROM ZAMBALES & PANGASINAN ORES. R.B. Quicho, L.C. Pedron & A.S. Maliosi. Rep. Invest. Philipp. Bur. Min. No.26, Manila, Nov.1960.

Recovery tests employing both dry and wet methods demonstrated that a variety of chrysotile fibre grades are recoverable at reasonable yields. Spinning grade was recovered to some extent. Recovery of amphibole fines at high yields was also demonstrated.

BRAZIL.

495 ASBESTOS. Foreign Service Despatch 679, Feb. 26, 1962, Rio de Janeiro.

According to the local press, a pilot plant was constructed in early 1962 to process asbestos from deposits discovered in Batalha, State of Alagoas.

AUSTRALIA.

496 GEOLOGY & MINERAL RESOURCES OF SOUTHERN EYRE PENINSULA. R.K.Johns. Bull. Geol.Surv. S.Austr.No.37,Adelaide 1961.

Economic mineral deposits are confined to the Archaesn belts and include, inter alia, asbestos.

NEW ZEALAND.

497 GOLDEN BAY. SHEET L/, GEOLOGICAL MAP OF NEW ZEALAND, SCALE 1:250,000. Wellington, N.Z., Geol. Surv. August, 1961.

Asbestos fibre is among minerals occuring in this district.

BRITISH BORNEO.

498 THE GEOLOGY AND MINERAL RESOURCES OF THE BANGGI ISLAND AND SAGUT RIVER AREA, N.BORNEO. R.A.M.Wilson, Mem. Geol.Surv. Brit.Borneo, 15, Kuching, 1961.

Economically, the results of the survey were disappointing, although chromite float and short-fibre chrysotile asbestos were found.

YUGOSLAVIA.

499 ASBESTOS MINE OF RASKA TO BE IMPROVED. Gummi Asbest Kunststoffe, June 1962, 15, No.6, p.577.

With an expenditure of 3 million dinars the asbestos mine of Raska, South of Kraljevo (Serbia), is to be modernized, so that the mining of asbestos can be increased eightfold. Planned for the future is a plant for the production of asbestos cement.

CYPRUS.

500 THE GEOLOGY AND MINERAL RESOURCES OF THE AGROS-AKROTIRI AREA. PART 1. THE AGROS-APSION AREA by L.M. Bear. PART 2. THE APSION AKROTIRI AREA by S.W.Morel. Mem.Geol.Surv.Cyprus No.7, Nicosia, 1960.

General, structural and economic geology are given. Asbestos occurs in both areas.

FINLAND.

501 CLASSIFICATION OF FINISH ANTHOPHYLLITE ASBESTOS FIBRES. Asbestos June 1962, 43, No.12, p.12.

An explanation of the meaning of the letters and numbers used in designating grades of Finish asbestos.

GREECE

502 REPORT ON THE GREEK MINERAL INDUSTRY. The Mining Journ. July 6th, 1962, p.7.

Minerals which recent Greek Government report considers to be worth exploring includes asbestos.

PART 2. ASBESTOS CEMENT.

503 ASBESTOS CEMENT PIPE. Chem.Eng.July 23,1962, 69, No.15 p.88.

News note about epoxy resin lined a-c pipe for corrosive liquids, available from Johns-Manville Co.

METHOD OF INTENSIFYING THE HARDENING PROCESS OF ASBESTOS-CEMENT

T. M. Berkovitch, cand. of techn. sc.

504. Translated by Astex Publishing Co.

An increased degree of hydration during the hardening period of Portland cement is a most important factor in accelerating the asbestos-cement manufacturing process. The amount of water in asbestos-cement during the hardening process must ensure the maximum possible chemical interaction between the cement and the water, (25% of the dry cement originally used). It must also ensure the wetting of the highly dispersed hydration formations and filling the cement gel's micro pores (20%). Furthermore, part of the water is retained by the chrysotile asbestos, because its individual fibres are of tubular structure.

Thus, to ensure complete hydration, the water-cement ratio during the hardening process of asbestos-cement, (disregarding possible evaporation of moisture), must not be less than 0.5 - 0.6. This is proved by investigations (1) on asbestos-cement samples with W/C = 0.24; 0.36; 0.45 and 0.79, prepared from laboratory ground Portland cement. Mineralogical composition (in%) of the clinker was : C_3S - 56.9; C_2S - 20.0; Ca_3Al - 4.8; C_4AF - 15.4; Gypsum content (SO_3) - 1.5%; specific surface area - 3180 cm^2/gr.

The degree of hydration of the samples, which were hardened in a hermetically sealed space was determined (2) after 1, 3, 7, 10, 14 and 28 days, by the amount of the unevaporated water (samples baked at 1000°) and the unhydrated remains C_3S + - C_2S, using ORS - 50 I setting, equipped with a scintellation counter, registering changes in the absolute intensity of the diffractional maximum from d = 2.76A°.

As can be seen from curves (Fig.1), an increase of the W/C in limits from 0.24 to 0.79 resulted in a considerably higher hydration speed, particularly as the process proceeded.

The hydration (chemically combined) and the gel waters (water saturation of the chrysotile asbestos fibrils, apparently, takes place mainly in the process of its wet opening) are supplied from the moisture, which fills the capillars of the asbestos-cement substance. It ought to be taken into account that the heterogeneous hydration reactions can only take place when there is an uninterrupted reverse diffusion of the reaction products into the capillary spaces, which are filled with water. Consequently, to maintain the required water-cement rates in the hardening asbestos-cement, it is necessary to fill its capillars with water.

However, the technology of the present asbestos-Portland cement manufacturing process does not ensure the conditions for complete hydration of the Portland cement for the following reasons :-

1) Owing to the unavoidable vacuum drainage of the asbestos-Portland cement film and the following further compacting by the forming bowl of the sheet making machine, the half-finished product is subjected to elastic deformations with the consequence, that part of the capillars (15 - 20%) are filled with air instead of water ;

2) with increased compacting of the green sheets their moisture content drops to 25% and the W/C ratio of the freshly formed sheets is not over 0.4 ;

3) the hardening process of the half-finished product leads to a further self draying as a result of evaporation and hydration of the cement. Evaporation of the moisture is particularly high in "warm" stockrooms with a relative humidity under 80%. Even at a higher humidity the big pores of the asbestos-cement sheets do lose water by evaporation.

As a result the semi-finished asbestos-cement, which is now transfered for the final hardening to the stock, where it has to pick up not less than 40 - 50% of its standard strength, now contains moisture which is not sufficient for effective hydration and hardening of the cement. For this reason full advantage is not taken of the binder's activity (les us remember that the strength of the cement is determined after being submerged in water) or of the compacting effect of the half-finished product on the sheet making machines.

All this indicates a necessity to increase the water content in the material during its hardening process. As the increase of the W/C ratio in freshly formed sheets is undesirable, (the porosity increases with a consequent lowering of strength of the matured goods), additional water must be supplied to the set semifinished material during its hardening process. To this principle corresponds the combined heat-moisture treatment of asbestos-cement where the hardening of the semifinished product, after a short steaming, takes place in warm water (6 - 24 hours). This allows for shortening of the maturing period and at the same time gives products of improved quality. However, to harden the formed sheets in water is a time consuming process and requires reconstruction of the existing factories, thus creating difficulties for the introduction of this combined treatment into the manufacturing practice, and also the use of conveyors for this purpose is prohibited. At the same time, the asbestos-cement industry faces the problem of producing asbestos-cement of improved strength in accordance with the Standard 378 - 60 without delay.

Taking this into consideration we suggested a short term additional wetting (water saturation) of the steamed semi-finished product, which would increase the degree of hydration while the asbestos-cement is kept in the warm stockrooms, thus allowing a shortening of the total maturing period and an improvement in the quality.

Experiments to investigate the additional short-term wetting of the semi-finished asbestos-cement products were carried out by NII Asbestcement (Scientific Research Institute for asbestos-cement) in 1961 at the asbestos-cement factories in Dushanbirsk, Bryansk and Kapsk.

The Portland cements used for these experiments, as can be seen from Table 1, varied in their chemico-mineralogical composition and activity. The manufacturing processes of the semi-finished product were kept in line with those required by the "Technological Chart of 1960" and were selected bearing in mind the practice of individual factories (Table 2).

Changes in moisture content of the semi-finished product (from the dry weight of the sample) during the hardening process and the degree of water saturation, which equals $\frac{v}{w}$ 100% (w - water absorption, v - water content) are shown in Table 3.

As can be seen from the data in this table, the degree of water saturation of the semi-finished product after steaming is approx. 70%. During further hardening of the sheets in warm stock rooms at Bryansk and Dushanbinsk factories (at a relative humidity not over 80 - 85%) the degree of water saturation dropped to 40 - 50%.

To a lower degree self drying of the semi-finished product was observed at Kapsk factory, where the relative humidity in the warm stockroom was kept at 95%.

To determine the optimum period of water saturation for the steamed semi-finished product, the kinetics of its water saturation were studied by submerging in warm water for 3, 5, 10 and 15 min.

The results of experiments (Fig.2) show that after 10 min. the speed of water saturation decreases ; 15 min. give moisture increase of 5 - 6 absolute percents, or approx. 30 relative ones (for a set semi-finished product). The degree of saturation reaches 90 - 95% and these conditions must be regarded as the optimum ones.

During further storing time in warm stockrooms, the additionally wetted semi-finished product showed higher water content and also correspondingly higher degree of saturation, though the relative increase of these figures, as a rule, was lower.

The further hardening of a steamed and saturated semi-finished product is considerably accelerated and in 7 - 10 days, as the figures of the Table 3 and Fig. 3 show, the increase of strength equals approx. 2% (or approx. 3 kg/cm^2) for each percent (absolute) of the additional wetting of the semi-finished product (15 min. saturation of the semi-finished product ensures an increase of strength up to 10 - 15% in 7 days). The same effect was also observed when hardening of the semi-finished product took place under unfavourable conditions (at low temperature), as proved by experiments carried out by K.M.Bikova at Belgorod asbestos-cement factory.

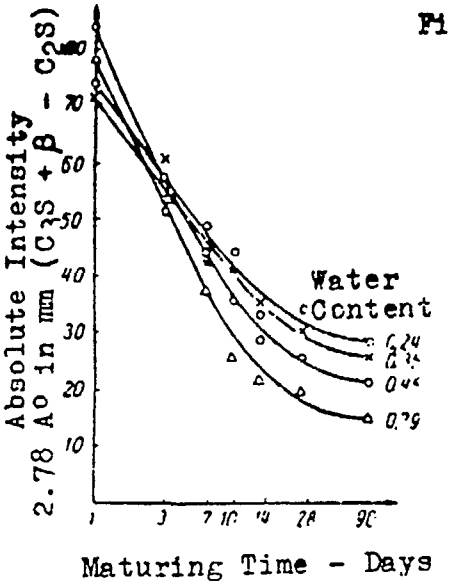

Fig. 1.

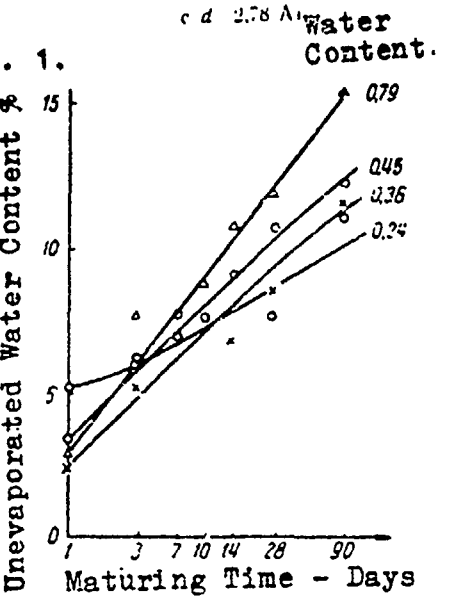

Fig. 2.
Wetting Kinetics of Steamed semi-finished asbestos-cement

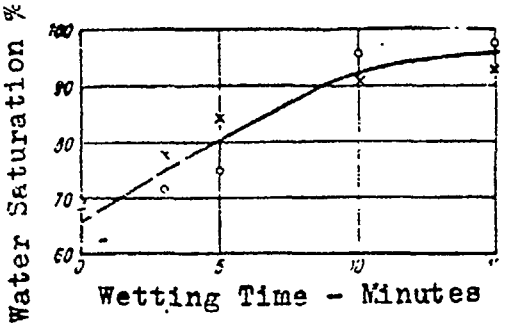

Figure 3.
Mechanical indeces during maturing period - wetted - without wetting.

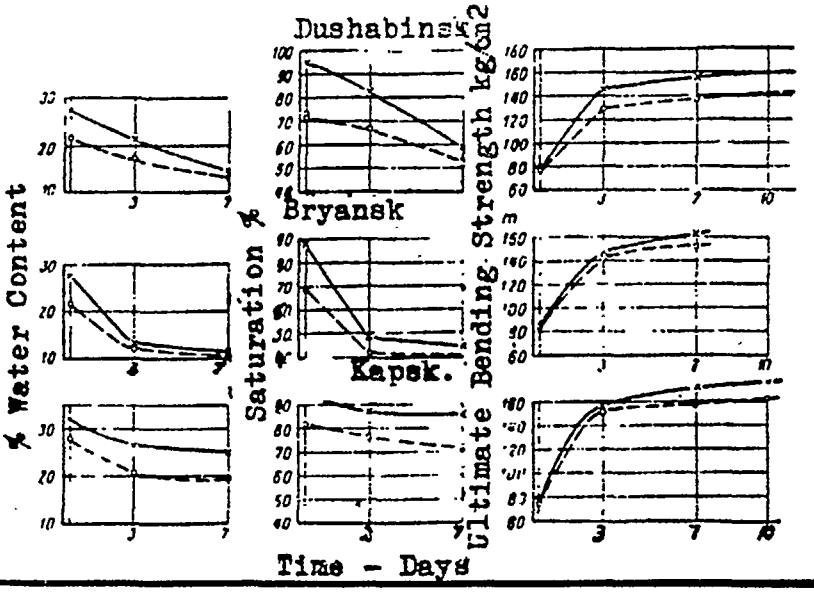

TABLE 1.

NAME OF FACTORY	C_3S	C_2S	C_3A	C_4AF	CaO-free	Fineness Residue on 0085 Mesh	STRENGTH OF COMPACTED MORTAR 1:3 - KG/CM^2 Tensile 3 days	7 days	28 days	Compressive 3 days	7 days	28 days
Dushabinsk	53	21	8	14	-	8.0	21.7	23.1	-	323	373	-
Bryansk	52	22	4.4	16	-	8.6	26.8	29.0	34.8	420	527	626
Kapsk	38	24	11.0	13	1.5	9.1	20.7	21.9	24.9	324	382	452

TABLE 2.

NAME OF FACTORY	Asbestos Blend % P5	P6	M5	M6	Asbestos Content %	Degree of Opening %	Process Water Temp.	Felt Speed Met/Min	Film Thickn MM	Moisture % Before Vac Box	After Vac Box	W/C Fresh Sheet
Dushabinsk	25-80	0-25	0-20	10-50	16.7	72	33°	42	0.65	56.0	36.2	25.0
Bryansk	25-50	0-25	35-50	0-15	14.5	75	32°	44	0.83	44.4	34.3	24.3
Kapsk	50	0-20	0-30	10-30	14.5	84	25°	40	0.74	52.4	38.9	25.9

TABLE 3.

	Water Content %			Saturation %			Ultimate Bending Str. Kg/cm^2			
	After Steaming	3 Days	7 Days	After Steaming	3 Days	7 Days	After Steaming	3 Days	7 Days	14 Days
Dushabinsk:-										
No wetting	21.4	17.2	13.1	71.5	66.5	52.2	77	130	137	150
wetted	27.6	21.4	15.0	95.0	82.5	58.8	77	146	156	163
Increase of Indices In absolute %	6.2	4.2	1.9	23.5	16.0	6.6	-	-	-	-
Increase of Indices In relative %	29.0	24.5	14.5	33.0	24.0	13.0	-	13	14	8.6
Bryansk:										
No wetting	21.4	11.8	10.7	69.0	41.9	41.3	84	141	153	-
wetted	27.4	13.0	11.5	88.3	48.2	44.4	84	147	162	-
Increase Absolute %	6.0	1.2	0.8	19.3	6.3	3.1	-	-	-	-
Increase Relative %	28.0	10.0	10.7	28.0	15.0	7.5	-	5	5.6	-
Kapsk:										
No wetting	27.7	20.6	19.6	81.1	76.4	72.5	75	151	157	163 *
wetted	32.2	26.5	25.1	93.5	86.3	86.3	75	156	173	176 *
Increase Absolute %	4.5	5.9	5.5	12.4	9.9	13.8	-	-	-	-
Increase Relative %	16.0	28.5	28.0	15.0	13.0	19.0	-	3.2	10	8

* Tests carried out on the 10th day.

Experiments of O.A.Isayev and Z.F.Krune at Karagondinsk and Krasnoyarsk factories proved that, when moulding is carried out without templets, the short-term additional wetting of the semi-finished product (initial strength 35 - 40 kg/cm2) and the long term combined "Heat-moisture" treatment produce equal results.

Thus a simple operation helps to increase the strength of the material by 15 - 20 kg/cm^2 and turn out asbestos-cement of the 160 grade.

The short-term additional wetting of the semi-finished product allows full advantage to be taken of the cement's reactivity and also of the sheet's higher density obtained furing the forming process on the sheet making machine. This results in shorter maturing periods and improved quality of asbestos-cement.

505 U.S.PATENT 3,027,294. PRODUCTION OF WATER REPELLENT ASBESTOS-CEMENT PRODUCTS. P.S.Bettoli & C.R.Eckert. (to Ruberoid Co.)

The formed asbestos-cement products are coated with thermoplastic acrylic copolymers after partial drying. Further drying and autoclaving cure the plastic coating and the asbestos cement.

506 JOINING GAS PIPELINES BY GLUING. A.A.Nikolaev. Stroit. Trubaprovadov 1962, 7, No.8, 23-4.

Experiments on joining low-pressure gas pipelines (made of metal or asbestos-cement) by glueing have been carried out at Fastov (Ukr). For asbestos-cement pipes, the glue consisted of 100 parts of an epoxy resin, 40 parts of ground and screened sand, 15 parts of dibutyl phthalate and 10 parts of hexamethylenediamine. The pipes are joined face-to-face, and the joint is protected by four or five windings of a gauze soaked with glue. The joints which were hydraulically tested at a pressure of 12 kg/cm^2, did not show any leakage. It is claimed that this method of joining is superior to the conventional methods in several respects.

507 INVESTIGATION AND DEVELOPMENT OF JOINTS AND RESIN PACKINGS FOR ASBESTOS CEMENT WATER-PIPELINES. B.M.Gorelik, A.V.Ratner, M.F.Bulchina & V.I.Kapshtyk. Kauchuk i Resina, 1962, 21, No.7, 19-23.

Dimensional requirements, admissible pressures and effects of low temperatures, ageing, use of polymerisation acceleration, etc., on the resin packings for water-pipelines made of asbestos-cement are discussed in detail.

508 BELGIAN PATENT 614,990. ASBESTOS-CEMENT PIPES. Comp. de Pont-a-Mousson.

A thin layer of asbestos cement slurry is wound onto a rotating mandrel made of a synthetic organic material, such as P.V.C., the coated mandrel is placed in a curing oven and, after curing, the tube is removed from the oven. Suitable apparatus comprises a station for winding the asbestos cement paste onto the mandrel, an oven, in which the temperature decreases from the inlet to the outlet, and an endless conveyor for the transport of the coated mandrel.

509 AUTOMATIZATION OF THE PREPARATION OF ASBESTOS CEMENT MASSES USING APPARATUS KEP.12U. S.S.Stanin & V.A. Sumin. Stroit. Mat. 1962, 8, No.7, p.26.

Arrangements for an automatic control of rollers and hollanders is described using the electro-pneumatic apparatus KEP-12U produced by the "Fizpribor" works (Moscow). No supporting relays are needed. The arrangement is versatile, permitting various modifications of the process. (The apparatus KEP-12U is not described in this article).

510 ASBESTOS CEMENT SHEETS COATED WITH SYNTHETIC RESINS. G.V.Aleksandrove & P.N. Sokolov. Stroit. Mat. 1962, 8, No.7, pp.11-12.

Decorative asbestos cement sheets are coated with fused resins; in one operation, a coating of a thickness of up to 3-5 mm. can be produced. Resins having a low fusing point are used, such as epoxide resins E-33 and E-44, usually with fillers, such as chalk, ground sand, white cement, talc and various pigments. For the application of the coating, the asbestos cement sheets were heated to 150-160°C, and the resins were melted at 100-160°C. For hardening, phthalic anhydride, or phenol- or cresol-formaldehyde resins were used.

511 S. AFRICAN PATENT R61/770 FIBROUS CEMENT ARTICLE. Turner's Asbestos Products (Pty) Ltd.

An article made of fibrous cement is provided with a roughened decorative surface finish by blasting the surface with granular particles while the surface is still not cured and subsequently allowing the article to cure.

512 THE COEFFICIENTS OF HEAT-& TEMPERATURE-CONDUCTIVITY OF ASBESTOS CEMENT. I. Chernyaev, Streit. Mat. 1962, 8, No.6, pp.33-34.

The Coefficients of heat- and temperature-conductivity depend on structural factors, temperature and moisture content of asbestos cement. In the experiments described in this article, these coefficients were determined by the heat-impulse method using a linear heater. The asbestos cement samples contained 16% of asbestos (IV and V grade, semi-rigid) and 84% of Portland cement (mark 400); the specific gravity was from 1285 to 1670 kg/m^3. It has been found that the coefficient of heat conductivity increases more than twice when the moisture content increases from zero to the saturation state (35 vol.%). The coefficient of temperature conductivity increases at first and then decreases which can be explained by phase changes of the liquid. The experimental results are tabulated and corresponding diagrams are given.

513 PREFABRICATED PANELS "ETERNIT" FOR WALLS & CEILINGS Il Cements, 1962, No.5, p.9-12.

Laminated wall and ceiling panels are produced by Eternit S.p.A. (Genova) in several varieties. They comprise external plates made of asbestos-cement and, interspersed between them, layers of an insulating material, such as expanded polystyrene, expanded cork (treated with pesticides and flame-retardants) or "Acalorit" (a rigid expanded material consisting of asbestos and silicates). The asbestos-cement plates used include "Eternit CO", "Glasol", (Having colour glaze) and "Ondula Eternit" (corrugated). A full technical specification of these panels and a detailed description of their uses in building are given.

514 ASBESTOS CEMENT. R. Teschner. Silikat Technik, 1962, 13, No.4, p.137.

Production methods and applications of asbestos cement are briefly reviewed.

PART 3. ASBESTOS TEXTILES.

515 ASBESTOS-PAPER CORD: MANUFACTURE & USES. R.P.Grushman & A.G.Lashina. Leningrad, 1962, 8p.(Leningrdskii Dom nauchno-tekh-nicheskom propagandy. Obmen peredovym opytom. Seriia: Stroitel 'Naia promyshlennost', no.1) (Monthly Index of Russian Accessions June 1962, 15, No.3, p.691.

516 GENERAL TECHNOLOGY OF ASBESTOS FIBRE SPINNING. A. S. Poiarkov. Moskva, Izd-vonauchno-tekhn. Lit-ry RSFSR, 1961. 256p. (Monthly index of Russian Accessions 15, No.3, 691, June, 1962).

517 U.S. PATENT 3,042,976. FIBRE OPENING AND CLEANING. Irvin Barnett. (to Johns-Manville Corp.).

Apparatus for opening fibrous masses and removing dust consisting of a horizontal tube with a vaned center shaft.

518 FRENCH PATENT 1,299,806. TREATMENT OF ASBESTOS FIBRES. Flammer Seifenwerke.

Asbestos fibres or asbestos products containing organic materials which cannot be removed by washing with water, are treated with aqueous solutions of alkali metal silicates or phosphate.

519 JAPANESE PATENT 7139/62. FLAMEPROOF FIBROUS SHEET MATERIAL. Fujimori Kogyo Co.

This material which is particularly suitable for ceilings, is produced by carding a mixture of a fibrous material and an adhesive, then pressing it and heating until the moisture content is reduced to 10-40%. A number of such sheets are stacked, pressed and dried by heating to form a laminate. In an example, 120g of a fibrous material (a 5:1 mixture of slag wool and asbestos) is dispersed in 72.5 litres of an adhesive solution (1 part of 70% phenol resin in 30 parts of water) and carded into 10 mm thick sheets, the water content of which is reduced to 40% by pressing and then, to 20% by heating at 60°C for 5 hours. Four of these sheets, now 5 mm thick, are stacked, pressed to reduce the total thickness by half, and dried at about 160°C for 15 minutes.

520 BRITISH PATENT 898,356. HEAT RESISTANT FIBROUS PRODUCTS OF ALUMINIUM SILICATE FIBRES AND ASBESTOS CARRIER FIBRES. Carborundum Co.

Several interchanging layers of aluminium-silicate fibres and asbestos are carded and converted into yarn on standard asbestos yarn making equipment. Higher heat resistance is claimed for such composite yarns.

521 ROCKET MOTOR LINERS. Mat. in Design Engn. May 1962, p.188.

The two new materials from Taylor Fibre Co., Advanced Materials Div., Valley Forge, Pa., consist of a nylon-asbestos base impregnated with proprietary phenolic resins. They can be used at

temperatures up to 5000°F. Potential uses include rocket motor liners, exhaust cones and other structural parts in rockets and space vehicles. Tayloron 5031 is basically a matt material, a ¼-in. thick specimen of the material shows a temperature rise of 400°F on the cold side 80 to 90 sec. after exposure to 5000°F. Burn-through occurs 150 to 170 sec. after exposure to a hot flame. Tayloron 5033 is a phenolic-impregnated nylon-asbestos cloth that is sold as tapes and fabrics. The fabrics can be used as a base material in filament wound structures.
Both materials are sold in pre-impregnated as well as in molded forms.

PART 4. ASBESTOS FRICTION MATERIALS.

522 HOW TO GET MOST FROM FRICTION MATERIALS. A.J.Bette. Prod.Eng., July 23, 1962, 33, No.15, pp 62-65.

Tables and charts show properties of the materials. The text describes how to apply them to industrial clutches and brakes.

523 CAUSES OF AND METHODS FOR PREVENTING THE CLOTTING OF THE MASS USED IN THE PRODUCTION OF FRICTIONAL ASBESTOS ARTICLES. V.P.Shitikov & S.G.Obchinnikov. Kauchuk i Rezina, 1962, 21, No.7, 35-37.

Butadiene-pentadiene latex (mark DBN-60) when introduced into the mass used in the production of frictional asbestos articles, coagulates, causing the clotting of the mass, and hence, prolonging the preparation process. It has been found that this effect can be eliminated by adding to the hollander sodium pyrophosphate which forms insoluble salts with magnesium and calcium cations present in the mass and hence, reduces the coagulative effects of these cations on the latex.

524 THE DEVELOPMENT OF THE PRODUCTION OF TECHNICAL ASBESTOS ARTICLES DURING THE LAST FOUR YEARS. D.L.Zak.Kauchuk i Rezina, 1962, 21, No.6, 1-2.

The total production of technical asbestos articles in U.S.S.R. increased from 1958 to 1961 by 44.2% (the increase in more important branches was as follows : brake shoes and linings, 41.9%, clutch discs 49.2%, asbestos fabrics 79.7%, "Paronite" sheets 29.4%). In order to further increase the production it is planned to introduce a rotary line for the manufacture of clutch discs, a new dry-method for the preparation of frictional masses (without using benzene as a solvent), a continuous production of rolled frictional bands with a shortened vulcanisation process, etc. It is also necessary to increase heat-resistance and service life of frictional and packing asbestos based materials.

525 AN ANTIFRICTION TAPE. Mat.in Design Eng. June 1962, p.172.

An anti-friction tape has a 10-mil backing of TFE and an electrical grade silicone rubber adhesive. The tape, called No.424 and available from Permacel, New Brunswick, N.J., is recommended for lining chutes and rails carrying lumpy and sticky powders, parts, boxes and packages. The pressure-sensitive tape can also be used for insulating coils and transformers.

PART 5 ASBESTOS-REINFORCED PLASTICS.

526. A NEW GROUP OF INORGANIC, PHOSPHOROUS-BEARING RESINS. Product Eng., July 23, 1962, 33, No.15, p.46.

For structural applications where high heat resistance and low thermal conductivity are required, Albright & Wilson (Mfg) Ltd., has a new group of inorganic, phosphorous-bearing resins. They look promising, too for brake linings, electrical insulating materials, surface coatings and adhesives.
"Asbestos felt laminates made with the new resins, A & W says, show flexural strengths in the 20,000 to 25,000-psi range and will retain over 50% of their strength after 50hr. at 930°F or 100 hr. at 570°F. The resins can be reinforced with mica, alumina, and flue gas dust to produce moulding compositions. The materials are still relatively expensive, £3.50 to £4.00 per kg. But prices are expected to come down as production increases, and inexpensive fillers can be used".

527 CROCIDOLITE FIBRE-REINFORCED PLASTICS. SPE J. August, 1962, 18, No.8, p.833.

According to recent tests, Crocidolite asbestos fibre, a sodium ferrose silicate which occurs mainly in South Africa has displayed ultimate tensile strengths of approximately 500,000 lb./sq.in. This material has also shown good bond strength and chemical resistance when incorporated into a thermosetting resin matrix. Polyester non-directional felt laminates displayed respective flexural and tensile strengths of 30,000 and 40,000 psi. (Entire abstract.)

528 GERMAN PATENT 1,134,170. COMPOSITION FOR THE PRODUCTION OF PACKING INSERTIONS. W. R. Grace & Co.

Tightening insertion inside a metal bottle cap is made from a cellular mass of Plastisol (100 parts of vinyl resin and 60 parts of a plasticiser), expanded by means of a blowing agent. It contains additives, such as lubricants, fillers and stabilisers. Suitable fillers include asbestos.

529 ASBESTOS IN PREMIXED POLYESTER MOULDING PREPARATIONS. R.T.Crouch & J.J.Thomas. Gummi-Asbest-Kunststoffe, 1962, 15, No.8, 718, 720, 740.

Asbestos has recently gained access to the domain of reinforced polyesters held till now exclusively by glass fibres. Asbestos as a reinforcing agent for polyesters can be used alone or in admixture with other fibres, e.g. glass fibres or sisal. Chrysotile asbestos especially suitable for this purpose is marketed by Johns-Manville Corpn., under the trade name Plastibest 20. The preparation, properties and applications of polyester resins reinforced with Plastibest 20 alone or in combination with other fibres are described in detail.

530 CHANGES IN THE QUALITY OF "FACLITE" UNDER THE ACTION OF AGGRESSIVE MEDIA. I A.Egorov. Plastich.Massy, 1962, No.1 p.71-72.

"Faclite" (material consisting of anthophillite asbestos chrysotile asbestos and thermosetting resins) was subjected to the action of a 22% hydrochloric acid solution for five years, and of boiling 80% sulphuric acid for one year. In the first case, the weight loss was 12%, in the second an increase in weight of more than 12% was observed. The flexural strength was reduced from 450 kg/cm^2 to 300 and 200 kg/cm^2 respectively, whereas the impact strength was reduced from 3.2 kg.cm/cm^2 to 2.7 and 2.2 kg.cm/cm^2 respectively.

531 REINFORCED POLYPROPYLENE HAS HIGH RIGIDITY. Mat. in Design Eng., August 1962 56. No.2, pp.141-142.

News note about a polypropylene moulding resin reinforced with asbestos fibre being marketed by Union Carbide Plastics Co., as Bakelite DMDA-4400.

532 VERSATILE LAMINATES. Railko & Mintex.

Asbestos reinforced laminates developed by the above company are designed to replace conventional metals for heavy duty work as bearings, brushes, rugging plates and for use in other difficult situations where lubrication, chemical reaction, or wide temperature ranges cause problems.
Further information can be obtained from Railko Ltd., Treadway Works, Loudwater, High Wycombe, Bucks.

PART 6 ASBESTOS PACKING, SEALING & COATING COMPOSITIONS

533 A NEW MATERIAL FOR STUFFING BOX PACKINGS. Werkstoffe und Korrosion, 1962, 13, No.5, p.335.

Packings made of asbestos fabric impregnated with "Teflon" (Du Pont de Nemours) were used in a condensate-recycling pump for six years without any maintenance: no leakage was observed. Conventional packings, which were used before, had to be coated (with fat and graphite) five to six times per year, and exchanged every year.

534 NEW ACID-RESISTANT VALVE PACKINGS. N.T.Dodonov; Vestn. Tekhn. i ekon.inform. N.-I.Inst.Tekhn-ekon.issled.Gos. Kom-Va Sov.Min. SSSR po Khimu, 1961, No.12, 45-46.

The behaviour of chrysotile and blue asbestos valve packings in acid media has been studied.

535 TWO TOUGH SYNTHETIC MATERIALS WITH WIDE POSSIBLE INDUSTRIAL APPLICATIONS. E.A.W.Bradford. Kunststoffe/ Plastics, 1962, 9, No.1, 27-28.

"Fluon", polymerised tetrafluoroethylene, and "Melinex", polyethylene-terephthalate (both produced by I.C.I. Ltd.) are described. Examples of asbestos packings impregnated with "Fluon" are given. Asbestos-"Melinex" laminates are mentioned.

536 BELGIAN PATENT 613,370. ADHESIVE PASTE. Zellstoff-Fabrik Waldhof.

An adhesive paste for floor, wall and ceiling coatings is prepared by mixing dry material obtained from sulphite waste liquor with 40-150% of cement (based on the weight of the dry material); fillers and other ingredients may also be added. In an example, 100 parts Portland cement, 102 parts asbestos powder, 5 parts bentonite and 3 parts calcium stearate are mixed with 190 parts of powdered dry material from sulphite waste liquor: for use, 200 parts of water are added to the mixture. The paste has good adherence to the substrate irrespective of its moisture content. The solidification is rapid.

537 BRITISH PATENT 864,437. EPOXY RESIN ADHESIVE. W.R.Grace & Co.

The adhesive composition useful for bonding metal to metal, and which produces a seal resistant to extreme variation in temperature contains 150 parts of short asbestos fibres.

538 JAPANESE PATENT 8554/62. SEALING MATERIAL FOR CASTING PROCESSES. M. Yoshimatsu.

A bituminous material is dissolved in a non-volatile oil, such as paraffin oil, and a non-combustible material, such as asbestos, is added. The mixture is kneaded with a refractory material, such as graphite, mica, perlite or talc. The paste obtained is formed into a sealing cord or tape.

539 RUBBER-ASBESTOS GASKETS RESIST OIL, GASOLINE. Mat. in Design Eng. June, 1962, p.168.

A sheet packing material is designed to use as gaskets that will be exposed to oil, gasoline and aromatic hydrocarbons. Made by a beater addition process, the material is homogeneous blend of asbestos fibres and NBR (nitrile) rubber latex.
The material, designated Best-Pak is marketed by Keasbey & Mattison Co., Ambler, Pa.

PART 7 PLASTIC BUILDING MATERIALS & PIPES.

540 - DESIGNING FACTORIES FOR THE PRODUCTION OF MATERIALS AND ARTICLES FROM PLASTMASSES. S.M.Neushev & Ya.S.Grishkevich. Stroit Mat. 1962, 8, No.7, pp 3-6.

Some typical modern designs of plants for the production of various articles from plastmasses are described. Included are two automatic lines for the production of asbestos-resin (polyvinylchloride) flooring plates. One of the lines is in operation at "Bolshevik" works in Kiev; starting materials for the production of flooring plates are : Polyvinylchloride resin PF-4 (18%), Coumarone resin (4%), dibutyl phthalate and V.I.S.F.(esters of higher isoalcohols and phthalic acid) in a ratio of 1:1 (9.5%) calcium stearate (0.5%) asbestos (31.6%), lime powder (31.6%) and colouring substances (4.8%). Other flooring materials described include laminates (in the form of plates or rolls) which contain heat- and sound-insulating materials (optionally asbestos).

541 FRENCH PATENT. 1,298,598. PANELS. Deutsche Solvay-Werke.

Panels, which are difficult to burn or are self-extinguishing, are made from wood chips, a binder and a fire retarding composition comprising 10-20 parts asbestos powder, 5-20 parts dicyandiamide or melamine, 50-85 parts boric acid, borates or phosphates, and 10-20 parts ammonium sulphate or amido-sulphonic acid. Before or after pressing, the mixture may be treated with a chloroparaffin containing 70. Cl. (Belgian Patent 606,858).

542 VINYL FLOOR COVERINGS. S.Mottram, & L.R.Anthony. Brit. Plastics, July, 1962. 35, No.7, pp.334-338.

Survey article on formulation, testing and use of the various types of vinyl floor coverings. 37 references.

543 PITCH FIBRE & PVC PRESSURE PIPES. Pipes & Pipelines, July, 1962, p.86.

The U.A.C. Group has formed a new Division, consequent upon its growing interests in pipe products of various kinds. It will be known as the U.A.C. Pipe & Ducting Division of the Universal Asbestos Mfg. Co., Ltd.

544 PLASTIC PIPES AND PIPELINES. Pipes & Pipelines August 1962, pp.31-38.

A vital section of the plastic industry is undoubtedly that concerned with the production of rigid PVC pipe, in fact, it is now so large that it can aptly be described as 'an industry within an industry'. This article describes standards, uses and advantages of PVC pipes.

545 A NEW CHEMICALLY-RESISTANT MATERIAL. M.A.Matveev & M.I. Babushkina. Zh Vses.Khim.Obshdi.im.Mendeleeva, 1961, 6, No.6. 708-9.

A new water and acid-resistant material for roofings and linings is made by hot-pressing a mixture of 66% of sand (from Moldavian deposits) ground to obtain spec. surface of 3500-4000 $cm^2/g.$, 20% unground sand, 4% Na_2SiF_6 and 10% asbestos (grade VI-VII) with the addition of water-glass. The specific weight of the product is 1.84-1.90 g/cm^2, and water absorption amounts to 10%. The product has a high frost-resistance and other valuable properties. It has been found that the main binding agent is highly dispersed silica produced by the interaction between Na_2SiF_6 and water-glass.

546 ONE-PLY FILM PUTS PLASTIC ON ROOFS. Chem.Week, July, 28, 1962, 91, No.4, p.38.

News note about T/RA 200, produced by Ruberoid Co., which consists of a pigmented polyvinyl fluoride film laminated to asbestos felt and is applied with conventional roofing cements.

PART 8 ASBESTOS PAPER & INSULATING MATERIALS.

547 PAPER-PACKED TOWERS. Chem.Week, August 4, 1962, 91, No.5, p.59.

News note about a phosphated asbestos and paper honeycomb material developed by Johns-Manville for packing in water cooling towers.

548 BRITISH PATENT 894,615. VACCINE PROCESS. Chas.Phizer & Co.

A virus medium containing poliomyelitis virus is filtered through an asbestos-cellulose filter pad capable of passing 50 gallons of water per square foot per hour.

549 U.S. PATENT 3,035,698. Izador J.Novak, (to Raybestos-Manhattan, Inc.) May 22, 1962.

A method for straining colloidally dispersed asbestos fibre to remove oversize particles is claimed.

550 S. AFRICAN PATENT R.61/3012. OBJECTS OF INORGANIC FIBRES. E. H. B. Nystrom.

Slabs or sheets are formed from aqueous suspensions of inorganic fibres in water to which is added starch or a starch-containing material while in wholly or essentially ungelatinous form. Drying is carried out at a temperature sufficient to cause the gelatinization of the starch acting as a binder.

551 GERMAN PATENT 1,049,764. IMPREGNATED ASBESTOS FIBRES AS FILLER AND INSULATING AGENT FOR CEMENT MIXTURES. Karl Hescal.

552 ASBESTOS-SILICATE HEAT-INSULATING WARE. I...Volchek, Stroit. Mat. 1961, 7, No.5, pp. 9-13.

553 BRITISH PATENT 900,468. COVER PLATES, INSULATING WALLS AND PANELS. W.W.Siek G.m.b.H.

This patent mentions an adhesive containing asbestos in powder form.

554 BRITISH PATENT 891,163. THERMAL INSULATION. British Oxygen Ltd.

Asbestos-Magnesia insulation is strengthened by being made with a polyvinyl acetate emulsion replacing some of the water.

555 PITTSBURGH CORNING BUYS A NEW PLANT. Chem.Eng.News, July 30, 1962, 40, No.31, p.41.

Pittsburgh Corning has bought Union Asbestos and Rubber Co.'s Unibestos pipe and block insulation plant. Unibestos is a high temperature insulation. Pittsburgh Corning will continue to use the trade name "Unibestos".

PART 9 REFRACTORY FIBRES.

556 FILTRATION CERAMICS FROM MASSES BASED ON WASTES FROM ASBESTOS-DRESSING WORKS. M.A.Matveev, K.A.Smirnova & V.P.Ustinova. Steklo i Keramika, 1962. 19, No.7, 28-32

Porous ceramics, having good filtration properties, high mechanical strength and chemical resistance, can be produced from waste materials from the asbestos industry using clay-bentonite or pure clay binders. Asbestos wastes used in experiments described in this article consisted of 70-80% serpentine, 6-10% chlorite, 4-6% olivine and 9-12% calcium and magnesium carbonates; they were calcined at 1250°; their alkali-resistance was 98% and acid resistance 90%. Masses used in the production of porous ceramics contained 90-90% of the asbestos wastes, 5-30% clay and 0-5% bentonite. The casting method was employed using plaster of Paris moulds. The firing temperature was 1200-1300°C.

557 TINY SPRINGS MADE FROM QUARTZ. The Financial Times, May 18, 1962.

Tiny coiled springs of fused quartz wire are said by their American maker to be so sensitive that they can show "the increase bacteria gain in weight when they are fed".
The springs are made by pulling fibre from fused quartz and wrapping it on a slowly turned mandrel mounted in a lathe. As the quartz thread is wrapped, it is heated with an acetylene torch to fix the shape of the spring.

558 LEAD MIXED WITH METAL FIBRES. The Financial Times. August 17, 1962.

Lead and bearing metal alloys mixed with a small amount of fibrous metal show an increase of as much as 800 per cent in creep strength, an American association reports.
Experimenters discovered that because of the blotter-like effect of the metal fibres the lead would not run out even when melted. To strengthen white metal bearings, as little as 20 per cent of mild steel fibres will increase the strength of the alloy eightfold.

559 CERAMIC FIBRE PAPER. The Financial Times, May 25,1962

An American 'paper' made of ceramic fibres is reported to withstand temperatures of 2,500°F while retaining the flexibility of ordinary paper. The material is intended for lining the tailpipes of jet engines to protect them from heat. It is one of several exotic 'papers' which are also being made of fibres of aluminium, copper, silver and nylon.

560 REINFORCED PLASTICS FOR ABLATION APPLICATIONS. Mat. in Design Eng., July, 1962, p.152.

High temperature phenolic resin is combined with graphite cloth in one case, and with silica cloth in the other, to make up two new ablation materials.
Both reinforced plastics are available from Taylor Fibre Co., Norristown, Pa.
Graphite-reinforced plastics generally have excellent ablation properties for their weight. In this case, the specific gravity is 1.4. The silica-phenolic composite has a specific gravity of 1.76.

PART 10 MISCELLANEOUS.

561 BRITISH PATENT 900,453. CATALYTIC DECOMPOSITION. Englehard Industries Inc.

Asbestos mentioned as a catalyst carrier.

562 BRITISH PATENT 898,394. IMPROVEMENTS RELATING TO PACKAGING. Univeller Ltd.

This mention relates to a method of manufacturing an hermetically sealed container, by welding its parts by heat and pressure. Asbestos mentioned as a filler.

563 BRITISH PATENT 897,976. ALUMINIUM FOIL PACKAGE FOR ANNEALING. Reynolds Metals Co..

This invention describes the placing of asbestos discs adjacent to each end sheet of annealed aluminium foil. It is claimed that asbestos discs absorb residual rolling oil which is driven from the roll during the annealing cycles.

564 SOUTH AFRICAN PATENTS 62/608 & 62/702. FIBERISING ASBESTOS MINERAL. Mineral Ind.Corp.of America.

A film of a liquid suspension of asbestos mineral particles is forced edgewise, under a pressure of at least 100 psi (preferably at least about 600 psi) through a thin, hard-surface gap, and

then thrown at an extremely high velocity (by virtue of the reduction of the high pressure to a much lower pressure beyond the gap) against a hard surface. Preferably, the film has a maximum thickness of about 0.09 in., and moves through the gap with a substantial change in direction as compared to the previous direction of flow.

565 ELECTRON MICROGRAPHS OF SOME UNUSUAL INORGANIC FIBRES. Charles W. Huggins. U.S.Bureau of Mines Dept.Invest. 6020 (1962).

Samples of chrysotile, cobalt-chrysotile, and serpentine are pictured as well as a number of other natural and synthetic materials.

566 AMPHIBOLES. I. OXIDATION OF CROCIDOLITE. II.KINETICS OF OXIDATION OF CROCIDOLITE. C.C.Addison, W.E.Addison, G.H.Neal and J.H.Sharp. J.Chem.Soc., 1962, 1468-1475.

PART 11 REVIEW OF JOURNALS

ASBESTOS, August, 1961.
807 Western Savings Fund Bldg. Philadelphia 7, Pa., U.S.A.

567 1. RESEARCH IN ASBESTOS UTILIZATION. W.B.Sinclair, p.2. The demand and supply position is discussed and the need for development work to create a new market is stressed.
2. FINNISH ANTHOPHYLLITE ASBESTOS, p.12. Standard grades and classification.
3. THE EVOLUTION OF THE DONOVAN FIBRE EXTRACTION SYSTEM, p.18. A straight line gravity flow fibre extraction system is described by R.A.Donovan.
4. ASBESTOS-CEMENT SIDING REJECTS, p.28. The installation of an Ohmart nuclear guaging system by The Philip Carey Mfg. Co., has improved the consistency in quality and reduced rejects.
5. REVOLUTIONARY CHALKBOARD. p.32. Advantages of asbestos-based Colorlith chalkboard installed in Canadian schools are listed.
6. MARKET CONDITIONS, p.36.