

A★F★D



The Jeffrey Open Pit Mine of J.M. at Asbestos, Quebec. Measures 1/2 mile in width, and 358 feet at deepest point.

ASBESTOS FIBRE DIVISION
Canadian Johns-Manville Limited
 814 Sun Life Bldg. (Telephone: Marquette 2421) Montreal, P. Q., Canada

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stipulated above. As a result, one design of brake will operate efficiently with a given type of friction material whereas, on a different brake which possibly tends to operate at a higher equilibrium temperature, an entirely different lining may be required in order to meet the high temperature service conditions. Such conditions serve to promote the development and sale of a variety of types of brake linings. Numerous other operating conditions contribute to this same trend, possibly thru the necessity of having a flexible brake lining for greater ease and speed in installing the friction material, or possibly the need to secure a lining with greater resistance to shear at the rivet or bolt locations, or may be the desire to secure friction elements which will perform more effectively when used against some specific type of drum or drum metal composition. These are some of the considerations which have tended to give rise to a variety of friction materials, rather than a few standardized products.

On the other hand it is possible to classify most of the friction materials produced in this country for use in automotive and industrial brakes into groups which differ with respect to the basic structure or construction of each type of product. A brief discussion of the principal types of construction in commercial use today is offered in the following:

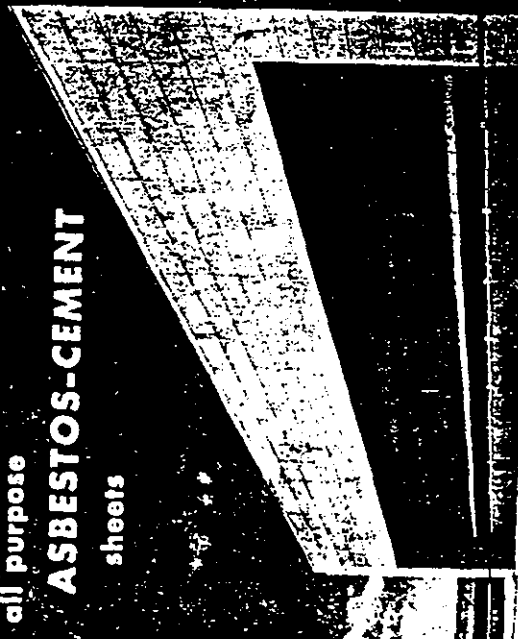
A. MOLDED BRAKE LININGS:

The friction materials requirements of automotive passenger cars, buses and trucks are currently met thru utilization of several types.

1. *Wire-Backed Type.* Linings in this category are among the most popular on the market today. The better linings of this type are of pleasing appearance, range from semi-flexible to inflexible, depending upon the composition and cure employed; possess good frictional properties under normal conditions of brake operation and have generally acceptable rate of wear.

Made by a calendaring process in which small nodules of disintegrated stock of a putty-like consistency are

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formed into a ribbon in which the wire backing member is embedded, the rolls of green stock are dried and processed by suitable curing and grinding operations to provide the finished brake lining. Due to the method of manufacture, no orientation of the fibres is possible and the internal structure of the lining is without pattern or direction.

The conventional binders, such as thermal-setting resins, drying oils, synthetic or natural rubber, either singly or in combination, are generally employed as a matrix. The use of a wire backing member in this type of lining serves in general a dual purpose: First, during the manufacturing operations it serves to strengthen the fabricated but uncured brake lining stock which would otherwise be very fragile and difficult to handle, and second, under service conditions, it enhances the structural strength of the brake lining and, in particular, provides greater resistance to the shearing action of the rivets during severe braking operations.

2. *Extruded Type.* Linings of the extruded type can be most successfully manufactured as rigid cut pieces.

Manufactured by extruding a soft plastic stock thru an orifice of rectangular cross-section, the formed but uncured brake lining is generally dried to remove any solvent present, and is then cut into pieces of proper length and cured in curved heated molds.

Liquid binders are used in manufacturing extruded lining, particularly those which will facilitate the extrusion operation. Drying oils, resins and rubber, converted where necessary to a liquid by incorporation of solvents, are representative of the binders which are employed in extruded linings.

Similar to wire-backed lining in its internal structure, but lacking the wire reinforcement, extruded lining tends to be structurally weak; this potential defect may be minimized thru selection and use of those binders, e. g. thermal-setting resins, which offer a maximum strength factor. In achieving this, however, it is generally neces-

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sary to compound and cure the lining to provide a very hard, inflexible finished product.

Editor's Note: This discussion will be continued by Dr. Halstead in our September and October Issues, in which other types of molded lining will be briefly described as well as Rubberized Fabric Linings and Woven Linings.

THE TWELVE ESTIMATING TABLES

Our book list (see page 50) mentions Twelve Estimating Tables, with Chart, convenient in figuring flange fittings and other areas, \$1.00 per set.

These tables have been found very useful by estimators in figuring areas, but since we have not for some time published the detailed list, it occurred to us that many would like to know exactly what the tables cover, and order them before the fall work begins. Following is the list:

Sq. Ft. Areas of Pipe Covering.

Mean Sq. Ft. Areas Standard Screwed Fittings.

Mean Area Standard Weight Flanged Fittings.

Standard Weight Flange Areas, Permanent Type.

Standard Weight Flange Areas, Removable Type.

Figuring Hair Belt, 1", 1½", 2"

Anti-Frost Insulation.

Cork Pipe Covering, Outside Area in Sq. Ft.

Ice Water Thick Cork Moulded Fittings Screwed,

Outside Area in Sq. Ft.

Brine Thickness Cork Moulded Fittings, Screwed,

Outside Area in Sq. Ft.

Special Thickness Cork Moulded Fittings, Screwed,

Outside Area in Sq. Ft.

Ducts and Flue Perimeters.

The chart gives an easy way to figure Curved

Cylindrical Surfaces.

The tables are printed on paper which will wear well under handling. Orders can be filled immediately upon receipt.

The Sun is always having sinking spells but he gets up every morning.

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