

MAR 16

RAW MATERIAL SPECIFICATION
ISSUED BY MATERIALS RESEARCH GROUP - RESEARCH & DEVELOPMENT DEPARTMENT

Date of Issue _____ Date of Revision _____ Approved by _____

General Category _____ Raw Material Asbestos Fibre 7K15

REMARKS This is a Canadian Chrysolite variety which is
hydrous Magnesium Silicate.

CHEMICAL ANALYSIS

Typical	Min.	Max.
	<u>Range</u>	
SiO ₂	38	42%
MgO	40	42
H ₂ O	12	15
FeO	trace-	6
Fe ₂ O ₃	trace-	6
Al ₂ O ₃	trace-	3
CaO	0	0.3

SCREEN SIZE OR
PARTICLE SIZE

Tyler Standard Sieves

**PLAINTIFF'S
EXHIBIT**

JM-480

PHYSICAL PROPERTIES

Specific Gravity 2.4 - 2.6
Color -Light gray

PRIMARY USES

Fibrous adhesive Mix No. S-303

SOURCES FROM WHICH MATERIAL MEETING ABOVE SPECIFICATIONS HAVE BEEN OBTAINED

Johns Manville, 22 E. 40th St., New York, N.Y.

nd Mix Specification

L. S. McClure
E. M. Teedlebe
P. E. Jeffers

Baltimore, Md.
Cary Lab
File 2

Date Issued July 30, 1942

St. Louis Mix No. _____ Date Started _____
LITCAST-32 Mfg. Method _____ Date Changed _____
LITCAST-32
Light weight, back up, insulating castable

% by weight	SCREEN SIZES	METHOD OF BURNING
40% Perlite	6 mesh	
36% Lumnite		
23% Grade 7K13 Asbestos (Johns-Manfield Corp.)		
1% Bentonite		

IN ANALYSIS	CHEMICAL ANALYSIS	BULK DENSITY oz./cu. in.	
3	Ign. Loss	MgO KILN REHEAT % Lin. Change	
4	SiO ₂	REHEAT TEST _____ °F % Lin. Change	
6	Fe ₂ O ₃	LOAD TEST	
8	Al ₂ O ₃	% Deformation	
10	TiO ₂	SPALLING % Loss	
14	CaO	MODULUS of RUPTURE lbs./sq. in.	
20	MgO	P. C. E. _____ Case °F	
28	Alk.	PORES Open Closed Total	
35		SPECIFIC GRAVITY True App. Bulk	
48			
65			
100			
100			

Asbestos prevents screen analysis

PLANT TESTS ON BRICK MANUFACTURED

DATE _____

WET GREEN BRICK

Weight
Length
Bulk Density
Moisture
Moisture—Wet Green Basis
Shrinkage—Dry Green Basis

DRY GREEN BRICK

Weight
Length
Bulk Density
Vol. Shrinkage
Lin. Shrinkage
Plant Shrinkage
Lin. Shrink. in./ft.

(SEE OVER)

BRICK BURNED CONE

Weight
Length
Bulk Density
Vol. Shrinkage
Lin. Shrinkage
Tot. Lin. Shrinkage
Lin. Shrink. in./ft.

STANDARD MIX SPECIFICATION

WORKS SPROUL ✓
 BRAND LITECAST 30 DATE ISSUED September 30, 1965
 MIX NO. C-164 MFG. METHOD Dry Mixer SUPERSEDING _____
 REMARKS Light weight insulating castable.

MANUFACTURING GUIDE

MIX BY WEIGHT SCREEN SIZING SPECIAL INSTRUCTIONS

- 40% - Expanded Perlite Grade - P-38
- 23% - Asbestos 7 K15
- 36% - Lumnite Cement
- 1% - Bentonite

PRODUCT SPECIFICATION

SCREEN ANALYSIS

CHEMICAL ANALYSIS

PHYSICAL PROPERTIES

ON	MIN.	MAX.	MIN.	MAX.	TEST	MIN.	MAX.
					Bulk density cast average oz./in. ³ Dried 230°F. - 24 hours ASTM C-20	0.33	0.38

STANDARD MIX SPECIFICATION

4/16/73

SPROUL

LITECAST 30

DATE ISSUED August 11, 1970

C-164

MFG. METHOD

Dry Mixer

SUPERSEDING

(Re-Issue)

ES

MANUFACTURING GUIDE

%BY WEIGHT

SCREEN SIZING

SPECIAL INSTRUCTIONS

Expanded Perlite Grade
P-38
Asbestos 7 X15
Luanite Cement
Bentonite

PRODUCT SPECIFICATION

SCREEN ANALYSIS

CHEMICAL ANALYSIS

PHYSICAL PROPERTIES

<u>MIN.</u>	<u>MAX.</u>	<u>MIN.</u>	<u>MAX.</u>	<u>TEST</u>	<u>MIN.</u>	<u>MA</u>
				Cast Bulk Density average, oz./in. ³		
				Dried 230°F	0.33	0

**General Utility Ropes for
Various Sealing
Requirements**

Style 4199

Style 4210



Construction Cross Section Density	Twisted, round, one ply, soft	Twisted, round, dense
Base Material	98/100% asbestos	Asbestos, felted
Impregnation or Lubricant	None	None
Finish Treatment	None	None
Temp Limit	1000°F	500°F
Service (Symbol)	(G)	(G)
Trade or Descriptive Name	Pure asbestos wick	Asbestos yarning rope
Applications	Chemical, cryogenic, nuclear services, yarning, caulking small spaces	Yarning bell and spigot joints
Features	High asbestos content, small size, chemical purity	Inorganic felted asbestos base, tightly twisted construction
Benefits	Resists high temperatures (1000°F), one-ply construction adapts to small packing spaces, high acid and caustic resistance.	Will not rot, decay or support bacteria; strong and durable yet can be easily separated. No pre-rolling required.
Approximate Number of Feet per Pound	(Max. Size 1/4")	(Max. Size 2")
Size/In.	1/4	3/8 7/16 1/2 9/16 5/8 3/4
Ft. Per Lb.	50.0	20.0 14.3 10.0 8.0 7.0 5.0
Size/In.		7.8 1
Ft. Per Lb.		4.0 3.0

Rec'd #1

*1. In some cases, asbestos wick
is used for sealing in
the ship's hull. Contact Mr. M. M. M.
Date 8-80*

J.M.A. X-2879-M = CARAY TAF-9

QUEBEC STANDARD GRADING SYSTEM

Group 1
Group 2

No. 1 Crude Consists basically of crude $\frac{3}{4}$ " staple and longer.
No. 2 Crude Consists basically of crude $\frac{3}{4}$ " staple up to $\frac{3}{4}$ ".

Group 3

Group 4

Group 5

Group 6

Group 7

Group 7
(floats)

Group 8

Group 9

Grade	10.5	3.9	1.3	0.3				
3F	10.5	3.9	1.3	0.3			3F12	
3K	7	7	1.5	0.5			3K12	
3R	4	7	4	1			3R12	
3T	2	8	4	2			3T12	
3Z	1	9	4	2			3Z12	
4A	0	8	6	2			4A12	
4D	0	7	6	3	4D28		4D12	
4H	0	5	8	3	4H28			
4K	0	4	9	3	4K30		4K12	
4T	0	2	10	4	4T30		4T12	4T04
5D	0	0.5	10.5	5			5D12	5D04
5K	0	0	12	4	5K30			5K04
5R	0	0	10	6	5R23	5R21		5R04
6D	0	0	7	9	6D30	6D24		6D04
7D	0	0	5	11				
7F	0	0	5	11	High Bulk & Absorption		Low Bulk & Absorption	
7H	0	0	4	12	7D04		7D15	
7K	0	0	3	13	7F04		7F19	
7M	0	0	2	14		7H05	7H15	
7R	0	0	1	15		7K05	7K15	
7T	0	0	0	16	7M05	7M05	7M15	
7R	0	0	0	16	7R05	7R05	7R15	
7T	0	0	0	16	7T05	7T05	7T15	
7R	0	0	0	16			7RF1	7RF3
7T	0	0	0	16			7TF3	7TF1
8S	Under 50 pounds per cubic foot loose measure							
8T	Under 75 pounds per cubic foot loose measure							
9T	Over 75 pounds per cubic foot loose measure							

In addition to the Standard Grades shown above, J-M has developed Special Grades for use in certain applications.

These include Plastibest #20, Paperbestos, and Asbaltic fibers, from the Jeffrey Mine, for use in the plastics, paper, and asphalt paving industries respectively; A-25 from Advocate Mine and M-60 and M-100 from the Munro Mine, for use in asbestos cement products; Ultrabestos grades from the Coalinga Mine, for use in floor tile; as well as many others.

If the Standard Grades do not fill your needs, you can arrange with your J-M Representative to have Johns-Manville develop a grade, custom tailored for your application.

SPECIAL J-M GRADES

Approximate Comparison of Tensile Strength of Various Materials

SiO₂ 38-42
MgO 40-42
FeO 12-15
Fe₂O₃ Tr. 6
Al₂O₃ Tr. 3
CaO 0-0.30

Type of Material	Tensile Strength (lb./sq. in.)
Ingot Iron	45,000
Wrought Iron	45,000
Carbon Steel	155,000
Ni-Cr Steel	243,000
Cotton Fiber	73,000 to 89,000
Glass Fiber	100,000 to 200,000
Chrysotile Asbestos	80,000 to 100,000

Type of Fiber	Surface area by N ₂ Absorption (Sq. cm/gm)
Nylon	3,100
Acetate Rayon	3,800
Cotton	7,200
Silk	7,600
Wool	9,600
Viscose Rayon	9,800
Asbestos (Chrysotile)	130,000 to 220,000

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