RTA 12 UNIT 1&2 SPECIFICATIONS

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Design-Specification
N-2900-SP640 REV 5

Reynolds Metals Company
Corpus Christi, Texas

ALUMINA PLANT
INSULATING MATERIAL

April 24, 1952

#17

PLAINTIFF'S EXHIBIT
RMC-88

CONTENTS

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GENERAL APPROVAL
RSS TO CBR 4-21-52

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I GENERAL

1 SCOPE This specification prescribes the materials used to insulate pipelines, tanks, machines, and other various equipment. It lists the composition, physical make-up, cements, banding, and weatherproofing used for the particular type surfaces to be covered. Materials are called out by manufacturers' trade names. But materials of equal durability and insulating properties, may be substituted when quotations are compared. Application of insulation is covered in Work-Specification N-2900-SP641.

2 CLASSIFICATION Insulation is classified as hot-surface, cold-surface, and fireproofing. The first two classes are divided into pipe, machine, and vessel and tank insulation. On this project, there is no cold-surface or fireproofing insulation.

3 SUMMARY The different types and amounts of insulating materials for pipelines and vessels, are listed on summary sheets. These summary sheets supplement this specification and serve as material-lists, but the type of material listed will conform to this specification. Pipelines and vessels to be insulated are also specified on the flowsheets and line-rating sheets.

II HOT-SURFACE INSULATION

4 DEFINITION Hot-surface insulation is that used to cover any surface 150F or hotter, either to retain heat or protect personnel.

5 PIPE-INSULATION

TYPE

Owens-Illinois Kaylo pipe-insulation is used on all pipes.

12-inch pipe and smaller	Sectional type covering
14- through 23-inch pipe	Tri-segmental covering
24-inch pipe	Quad-segmental covering

THICKNESS

The thickness of insulation for the various pipe sizes is listed below. The dimensions shown are total thicknesses of insulation. S, indicates the insulation is single layer. D, indicates the insulation is double layer.

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Continued - II HOT-SURFACE INSULATION

5 PIPE INSULATION

PIPE-SIZE Inches	PIPE SURFACE TEMPERATURE 150 to 480 F Inches	780 F Inches	980 F Inches
1/2	1 S	1 1/2 S	2 S
3/4	1 S	1 1/2 S	2 S
1	1 S	1 1/2 S	2 S
1 1/2	1 S	2 S	2 1/2 D
2	1 1/2 S	2 S	2 1/2 D
3	1 1/2 S	2 1/2 D	3 D
4	1 1/2 S	2 1/2 D	3 D
6	1 1/2 S	2 1/2 D	3 D
8	1 1/2 S	2 1/2 D	3 1/2 D
10	1 1/2 S	2 1/2 D	3 1/2 D
12	1 1/2 S	3 D	3 1/2 D
14	1 1/2 S	3 D	3 1/2 D
16	1 1/2 S	3 D	3 1/2 D
18	1 1/2 S	3 D	3 1/2 D
20	1 1/2 S	3 D	3 1/2 D
24	1 1/2 S	3 D	3 1/2 D

CEMENT

For insulating cement, use Eagle Picher mineral wool cement. Use Insulkote for sealing aluminum jackets and asbestos felt.

FLANGE-JOINTS

Where end of insulation is set back at flanged joints, use Johns-Manville Number 20 Refractory Cement.

BANDING

Wire is 12-gage, annealed black iron. Netting is 19-gage, monel, 1-inch hex-mesh.

Reynolds Metals Company aluminum pipe covering bands for use with aluminum weatherproofing at powerplant.

Band straps on other piping are 1/2- by .020-inch stainless steel or monel with seals.

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Continued - II HOT-SURFACE INSULATION

5 PIPE INSULATION Continued

COVERING

Canvas as supplied on single-layer sectional pipe insulation up to 2 1/2-inch thickness. Use 8-ounce canvas on double-layer or segmental insulation.

WEATHERPROOFING

The following three types of weatherproofing are used on pipelines.

Johns-Manville Insulkote weatherproofing is used on valves and fittings.

Asphalt-saturated asbestos-felt, 55-pound, is used on all lines in process areas.

Reynolds Metals Company aluminum pipe jackets are used on lines in powerhouse area. Jackets are felt-lined.

6 MACHINE INSULATION

TYPE

Eagle Picher mineral wool insulating cement is used to insulate machines that are not covered with shaped blocks.

THICKNESS

Thickness of insulation for various temperatures are listed below.

MACHINE SURFACE TEMPERATURE	THICKNESS
150 to 175 F	1-inch
175 to 325 F	1 1/2
325 to 550 F	2
550 to 750 F	2 1/2
750 to 950 F	3

BANDING

Wire is 12-gage, annealed black iron

Netting is 19-gage, monel, 1-inch hex-mesh.

WEATHERPROOFING

Johns-Manville Insulkote is used to weatherproof insulated machines.

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Continued - II HOT-SURFACE INSULATION

7 VESSELS AND TANKS

TYPE

Pipe insulation is used to cover vessels 24 inches and less outside diameter.

Eagle Picher block insulation 6- by 36-inches is used to cover vessels 24 inches to 10 feet outside diameter.

Eagle Picher block insulation 12- by 36-inches is used to cover vessels larger than 10 feet in outside diameter.

THICKNESS

Thickness of insulation for various temperatures are listed below.

VESSEL SURFACE TEMPERATURE	THICKNESS
Up to 300 F	1 1/2-inch
300 to 450 F	2
450 to 600 F	3

CEMENT

Eagle Picher mineral-wool insulating-cement is used over block insulation.

BANDING

Wire is 12-gage, monel.

Netting is 19-gage, monel, 1-inch hex-mesh.

Band straps are 3/4- by .023-inch stainless steel or monel, with seals.

WEATHERPROOFING

Johns-Manville Insulkote is used for weatherproofing over insulating cement.

FLASHING

24-gage stainless sheet steel is used for flashing at horizontal support-rings.

16-gage stainless sheet steel is used for flash at vertical tie-bars.

REVISION 1 - May 27, 1952
Pipe-Insulation - added canvas covering.

REVISION 2 - October 7, 1952
Changed weatherproofing to Insulmastic with Glasfab membrane.
Changed bands on vessels and tanks to stainless steel.

REVISION 3 - October 17, 1952
Changed banding to stainless steel or monel.
Changed netting to monel.
Deleted Glasfab membrane.

REVISION 4 - October 29, 1952
Deleted Bond-Tite in Par. 7.
Changed flashing from galvanized to stainless in Par. 7.
Changed wire from black-iron to monel in Par. 7.

REVISION 5 - November 18, 1952
Changed insulating block and insulating cement to Eagle Picher.
Changed weatherproofing to Insulkote.