FILE NAME: Reynolds Metals (RM)

DATE: 1965 Sept 10

DOC#: RM002

DOCUMENT DESCRIPTION: RM Recommended Practices - Application of Sprayed Limpet Insulation

DR. 7-15-65	DATE	REYNOLDS METALS COMPANY SHERWIN PLANT	DWG. NO. WS-LQ-80
CK'D.	APP.		STOCK NO. / PATT.
	SCALE	APPLICATION OF SPRAYED LIMPET INSULATION	MATERIAL
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1	DATE 9-7-65	REVISION PATCHING EXISTING BLOCK INSULATION	APP.	2 DATE	REVISION CLEANUP & SAFETY

SCOPE This specification covers the procedure for the installation of sprayed "Limpet" asbestos thermal insulation.

GENERAL

SURFACE PREPARATION Clean loose scale, dirt and grease from the surface, using wire brush or sand blast. It is not necessary to buff back to bright metal, only loose scale, particles and dirt need to be removed. Limpet should not be applied over an asphalt primer. It should not be applied when atmospheric temperature is below 40°F.

There are two types of Limpet; LW-25 is for temperatures to 700°F, LB-8 is for temperatures to 1350°F.

The insulation should, if necessary, be protected by means of tarpaulins until the weatherproof coat has been applied. The sprayed Limpet must dry at least 24 hours before application of weatherproof coat--longer if temperature is below 70°F and relative humidity above 60%.

PERSONNEL PROTECTION Spray "Limpet" asbestos to a thickness of 1-1/2" on surfaces of vessels, tanks, equipment, pipe or duct within three feet of certain designated working areas, covering all portions within reach of personnel.

TANKS

Tanks, including deaerator and blowdown tanks in boiler plant, with exception of strong caustic (such as digester vessels) or strong sodium aluminate tanks, are to have Graham pins stud welded on 18" centers, in a diamond pattern on all surfaces.

Spray the Limpet to a thickness 1/4" less than required by Table I. Impale 4" x 4" squares of* lath on pins, snug up to insulation, install speed clips, and cut excess pin. Spray additional 1/2" of insulation, tamp down to required thickness.

For strong caustic tanks and strong sodium aluminate tanks (strong liquor, caustic storage, etc.) attach the pins with epoxy adhesive Bakerloc (Baker Tool Co., Houston, Texas).

FINISH Trowel one coat #551, Gray Vi-Ac breather mastic. Place 10 x 10 mesh glass fabric reinforcing while mastic is soft. Trowel second coat of Vi-Ac. The minimum dry film thickness of the two coats of Vi-Ac weatherproofing material is 1/8".

* - All lath to be stainless steel.

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FINISH (Cont.) The weatherproofing should extend 3" beyond the insulation on bracing, supports, pipe, etc., attached to the tank.

The lower edge of the weatherproofing should not be bonded to the tank.

As an alternate to the Graham pins, stainless steel flat head #10-24 machine screws and stainless steel nuts may be used. Arc-weld the heads to tank, and upset threads to prevent nuts from backing off.

PRESSURE VESSELS

Vessel heads and bases require Graham pins or screws for anchoring insulation; follow the insulation procedure as outlined above for tanks. Graham pins are installed during manufacture, prior to stress relieving.

Vessel walls do not require anchors. Spray the Limpet to 1/4 - 1/2" thicker than in Table I, and tamp to the specified thickness.

Apply finish as outlined for tanks.

All vessels should have welded circumferential support rings at maximum 9' spacing installed during manufacture, prior to stress relieving.

EQUIPMENT

As called for on equipment list, pumps, turbines and other machinery are to be spray insulated with Limpet LW-25. Mask moving parts so that insulation is not sprayed onto or in a manner to interfere with moving parts. Thickness required shall be as specified in Table II.

For outdoor service finish against weather with 1/8" (Dry film) Vi-Ac breather mastic reinforced with 10 x 10 glass cloth.

The edges of the Limpet should be tamped hard and sloped 45° to shed rain. Vi-Ac and glass cloth should extend at least 3" beyond insulation.

Duct and flues (boiler, exhaust, inlet, etc.) are to be spray insulated with Limpet LW-25 for services to 700°F and Limpet LB-8 for service from 701°F to 1350°F. Graham pins are to be stud welded on 18" centers in diamond pattern on all vertical and bottom surfaces. Spray insulation as for tanks, except refer to Table II for required thickness.

Stainless steel #10-24 machine screws may be used instead of Graham pins.

EQUIPMENT (Cont.)

For outdoor service finish as for pumps and turbines. Where duct or flue extends indoors, carry the weatherproof finish indoors a minimum of three feet.

Spray insulate to a minimum thickness of 1", all stiffeners and supports running along ducts or flues, rounding and filleting to form a continuous smooth surface with base insulation

Except for gas turbine expansion joints, all expansion joints or flues and ducts are to be shielded with a metal sleeve. Insulate all sleeves with the same material and thickness as on adjoining duct. Sleeves are anchored to one side of expansion joint and free to slide on the others.

Gas turbine expansion joint is to be insulated with a removable type of material, i.e. mineral wool blanket strip, the thickness to be the same as for the adjoining piece.

Cover bolts with aluminum foil before covering with Limpet.

Stop insulation short of casing flanges to allow removal of bolts, finish off to 45° bevel, and seal. Do not cover nameplates - bevel 45° to edge of nameplate and seal.

⚠ PATCHING EXISTING BLOCK INSULATION

Preparation:

Remove all loose covering mastic and wire mesh in the area to be patched. Remove all damaged blocks and prepare the surface in the usual manner, installing Graham pins if necessary. If strapping is used to hold some remaining blocks in place, cut and lay it back. The waterproof cover should be stripped back to at least 6" beyond the limit of the damaged block however the cover generally will be damaged for a somewhat larger area.

Installation:

Spray on the "Limpet" in the usual manner, feathering the edge out over the old block but not on the mastic waterproofing. When it has been tamped to finish thickness reconnect, by splicing in a new section, any bands holding remaining block. Use the banding tool and stainless steel "Band-It" straps available from the toolroom.

Clean and rough up the old mastic with a wire brush for 16" around the patch area. Spread the Vi-Ac mastic over the "Limpet", the block, and the roughened original cover. Apply the glass cloth and the finish coat.

The decision to spray "Limpet" or replace blocks on a patch job will depend on its location and accessibility. As a general rule, a readily accessible job should be at least 45 square feet in area. This will require one sack of "Limpet" applied to a depth of 1 1/2".

TABLE I - VESSEL AND TANK INSULATION, CODE H

Vessel or Tank Surface Temperature	Thickness
up to 300 F	1-1/2 inch
301 to 450 F	2
451 to 600 F	3

TABLE II - EQUIPMENT & DUCT INSULATION, CODE H

Machine Surface Temperature	Thickness
150 to 175 F	1 inch
176 to 325 F	1-1/2
326 to 550 F	2
551 to 750 F	2-1/2
751 to 950 F	3

CLEANUP

(2)

Remove all excess Limpet oversprayed onto moving mechanical parts, bolt threads, name plates, ladders, landings and pads each day before the cement sets up hard. At the completion of the job, or as may be necessary, remove all sacks, wrappers, cartons, and other large debris from the work area.

EMPLOYEE SAFETY

All employees working with Limpet blown asbestos are required to wear respirators. This includes the man feeding the machine, the Limpet tamper, the nozzle operator and any other service repairman in danger of breathing airborne asbestos fiber.

BY_____ DATE_____ SUBJECT LIMPET SPECIFICATION

CHKD. BY_____ DATE_____

NUKA SPECIFICATION

SHEET NO. 5 OF 5

JOB NO. WS-1Q-90 Rev.

7/15/65