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RHM/CME

9th March 1967

C. JW
KH/GRP
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IMPERIAL CHEMICAL INDUSTRIES LTD
AGRICULTURAL DIVISION

We have at the present time about three contract enquiries against projects which are sponsored by H.G.C. and Plastics Divisions of I.C.I. and the specifications define fairly clearly the use of asbestos-free insulation and mention is also made of compositions and the substitution of glass cloth for asbestos cloth. The current projects may be worth some £800/700,000, involving perhaps about £200,000 of insulation.

M.I. & C.Co.Ltd will not, at the present time, be able to offer an alternative asbestos-free calcium silicate and this seems to be the position as far as J.W.h. are concerned. therefore, it would appear that the Chemical & Insulation Company Ltd, Darlington, stands every chance of securing this business.

Naturally, we are interested in the alternatives which T.B.A. can offer against Fothergill & Harvey's glass cloth and we will certainly co-operate to the full in putting forward an asbestos-free BD 2, as and when this is available--

Enclosed is a copy of a specification, which has been extracted from a contract enquiry received by M.I. & C.Co.Ltd.

ROBERT H. WILSON

Encl.

DRAFT

INTERIAL CHEMICAL INDUSTRIES LIMITED
AGRICULTURAL DIVISION

TEMPORARY SPECIFICATION FOR PROJECT#829 (L.P. STEAM MAINS, STAGE I)
THE APPLICATION OF MINERAL WOOL INSULATION AND ITS PROTECTION
WITH METAL CLADDING - PIPES ONLY

1. MATERIALS

All materials covered by this Specification shall be new and shall conform with the details given below.

During delivery, off-loading and storage on site, all materials shall be adequately protected from the weather and mechanical damage, to the satisfaction of the Company.

1.1 Insulating Materials

The insulating materials shall be mineral wool (Stillag Therbloc or Eldorite) of density between 14 and 18 lb./cu.ft. in the form of preformed slabs, lags or pipe sections. It shall be chemically inert, rot and vermin proof. It shall contain not more than 2 1/2% by weight of organic binder. The total sulphur compounds shall not exceed 1% measured as sulphur.

1.2 Fixing and Protecting Materials

(a) Sheet Metal Protection

The metal sheeting shall be aluminium of commercial quality to B.S. 1470 : Grade MS4-H (Kynal M35/1 - ICI Metals Division). The sheeting shall be pretreated at works by 'Alocrom' process. On pipes up to 12" outer diameter (including the insulation) the sheet shall be not less than 24 swg. For pipes over 12" diameter and up to 24" the sheeting shall be not less than 22 swg and for larger diameter pipes not less than 20 swg shall be used. For removable covers and where mechanical damage is likely to occur 16 swg sheet shall be used.

Galvanised mild steel sheeting shall not be used except when called for on the Company's order. When so called for the sheeting shall be of commercial quality hot dipped or electro-galvanised. The weight of zinc shall be not less than 0.6 oz./ft.² per side. Galvanised sheeting shall be not less than 24 swg for pipes up to 12" outer diameter (including the insulation) and 22 swg for pipes between 12" and 24" outer diameter. For larger diameter pipes not less than 20 swg shall be used. For removable covers and where mechanical damage is likely to occur 18 swg sheet shall be used.

(b) Metal Bands

For use with Aluminium Cladding, bands shall be in aluminium alloy to B.S. 1470 Grade MS4-H and not less than 22 swg. For securing mineral wool sections to the pipe the bands shall be 1/2" wide. For securing aluminium sheets in position bands shall be 1/2" wide for pipes up to 12" outer diameter (including the insulation) and 3/4" wide for larger diameters.

For use with galvanised mild steel sheets bands shall be galvanised steel strip not less than 24 swg, 1/2" wide.

Stainless steel bands if specified shall be not less than 24 swg, 1/2" wide.

(c) Screws

For use with aluminium sheet self-tapping screws shall be aluminium to B.S. 1476 Grade NS 10 in the fully heat treated condition. When galvanised mild steel sheet is specified stainless steel self-tapping screws shall be used.

(d) Rivets

Rivets for aluminium sheet shall be aluminium to B.S. 1473 Grade NS-0. Galvanised rivets shall be used with galvanised steel sheet.

(e) Quick Release Fastenings

For use with aluminium sheet these shall be aluminium alloy to B.S. 1470 Grade NS-1H.

For use with galvanised mild steel fastenings shall be of mild steel and subsequently electrogalvanised.

(f) Sealing Materials

The sealing material for use in lap joints shall be Prestik Sealing Strip No. 5643 made by Bostik Ltd. applied as a flat strip 1/8" thick and 1/2" wide minimum. Where resistance to solvents is required Prestik No. 5806 may be used. Alternative materials must be approved by the Company.

(g) Weatherproofing

The weatherproofing mastic for bends shall be Sealfas Mastic 31/57 made by Atlas Preservative Co. Ltd.

(h) Glass Cloth

Shall be glass scrim cloth ECK 705 made by Turner Brothers or Glass Cloth No. 10 made by Atlas Preservative Co. Ltd. or equivalent.

(i) Self-Adhesive Tape

Self-Adhesive tape shall be cloth tape A 61 made by Rotunda Limited or equivalent.

2. APPLICATION

2.1

The insulation slabs, lags or sections shall be held in close contact with the pipe to be insulated by means of bands. Each piece of insulation shall be held by at least two ties except at bends where small fitted pieces may require only one tie. For small pieces galvanised soft iron wire 18 swg ties may be used. Where more than one layer of insulation is applied the joints for any one layer shall not coincide with the joints of any other layer. The insulation shall be butted up tightly against neighbouring pieces and no large gaps shall be permitted. Small gaps shall be filled with loose mineral wool.

Insulation shall be stopped short of flanges of sufficient distance to permit withdrawal of bolts.

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On vertical lines 12' and greater in length insulation supports shall be provided. These shall consist of metal rings and part rings at intervals not greater than 12'. The supports shall be welded or clamped to the pipe as directed by the Company. The supports shall penetrate the insulation to a distance of 1/2" from the outer surface.

2.2 Straight Pipe Runs

The pipes shall be covered with metal to the specified gauge. Both longitudinal and circumferential overlaps shall be a minimum of 2". All joints shall be made so as to shed water and longitudinal laps shall be slightly offset adjacent pieces.

The cladding shall be fastened in place with aluminium straps and seals at 9" centres. On vertical lines a minimum of 4 aluminium self-tightening screws shall be fitted at circumferential joints. The screws shall either pass through a band or be positioned immediately below one. Where expansion joints are required screws will be omitted and replaced with 'Z' clips.

Vertical longitudinal joints and all circumferential joints shall be sealed with a continuous strip of Prestik. At circumferential joints below bends, the Prestik shall be fitted on the coating of the bend so as to fill the open end of the joint. This is to ensure that water cannot collect in the gap between the jacketing and the cover at the bend.

2.3 Bends

Self-adhesive cloth tape shall be spirally wrapped over the insulation on bends with a minimum of 1/2" overlap at joints. The cloth shall be given a trowel coat of weather proofing mastic and a layer of glass scrim cloth shall be embedded in the wet material. When the first coat is dry a second brush coat of mastic shall be applied. The wet film thickness of each coating shall be approximately 1/10".

Bends shall be covered before adjacent straight sections so that the aluminium shall be applied with a minimum of 3" overlap on top of the finish.

2.4 Flanges and Valves

Flanges and valves shall be covered with removable boxes lined with flexible mineral wool faced with wire netting. The boxes shall be fabricated generally in accordance with ICI Specification K5001.

2.5 Pipe Supports

Pipe hangers for outside use shall be provided with a weather hood as illustrated in ICI Specification K5001, Figure 3.

Pipe rollers or Slipper supports shall be treated generally as shown in ICI Specification K5001, Figure 6.

3.6 Stainless Steel Equipment

Before the application of the insulation of stainless steel pipe and equipment shall be wrapped with aluminium foil of approximately 46 swg. Foil shall be fitted with laps so as to shed water and the overlap at joints shall be a minimum of 2". At flanges, valves etc. the foil shall be fitted snugly against the steel surface and held in place with wire ties, on pipes wire ties or bands shall be used where necessary.