1 HOT INSULATION THICKNESS

Mineral wool shall comply with ASTM C262-64 and C547-74 with density of 70kg/m3.
Fiberglass block, sectional or segmental pipe coverings shall have a density of 70kg and comply with ASTM C800-75.

	Temperatures ^{0}C					
PIPE SIZE NB	**21 - 200**	**201 - 300**	**301 - 400**	**401 - 500**	**501 - 600**	**601 - 700**
15	25	25	50	60	60	70
20	25	25	50	60	60	70
25	25	25	50	70	70	80
40	25	25	50	70	70	80
50	25	25	50	70	70	90
80	25	40	50	70	80	90
100 - Heater	25	40	50	80	80	90
150 – NaF-Trap	40	40	60	80	90	100

1.1 2X NaF – Trap

- 150NB pipe
- D = 168.28 mm
- Add 10 mm for the heating elements
- Insulation thickness = 60 mm
- Final OD ≈ 190 mm
- Length = 2.12 m

1.2 N2 – Heater

- 100NB pipe
- OD = 114.30 mm
- Add 10 mm for the heating elements
- Final OD ≈ 135 mm
- Insulation thickness = 50 mm
- Length = 1.26 m

1.3 1/2 ‘’ SS N2 supply line to the NaF-traps

- Pipeline size = ½" SS tubing
- OD = 12.70 mm
- The table above does not make provision for tubing. The smallest diameter is for 15 NB pipe that has an OD = 21.34 mm. Therefore, this size cannot be used to procure the insulation material. The supplier needs to be consulted on what to do.
- Insulation thickness = 25 mm
- Length = 4.7 m

2 BASIC INSULATION MATERIAL

2.1 Mineral wool , sectional or segmental pipe coverings with density of 70kg/m3 for preformed pipe sections and 350 kg/m3 for batts, shall be used. Mineral wool to comply with ASTM C262-64 and C547-74

2.2 Fibre glass block, sectional or segmental pipe coverings shall have a density of 70kg/m3. Fibre glass shall comply with ASTM C800-75

2.3 Pipe coverings shall be supplied in matching half sections or segments and shall comply with ASTM C585

2.4 Maximum resin content, by mass, in either mineral or fibre glass batts, sections or pipe coverings, shall not exceed 3%.

3 FINISHES FOR OUTDOOR

3.1 Metal cladding should either be 0.5 mm to 0.8 mm aluminum or galvanized sheet. In the case of large diameter storage tanks IBR sheeting may be used. A minimum overlap of 50mm shall be allowed on all joints with edges crimped facing downwards to prevent seepage of water. All overlaps are to be pop-riveted or secured with self-tapping at 300 mm centers. Rivet or screws heads and galvanized metal edges are to be primed and painted with aluminum paint.

3.2 Pipe flanges and valves are to be fitted with removable boxes, which are to fit snugly to the sheet metal muffs on the piping.

The insulation shall be covered with one 8 mm coat of hard setting composition reinforced with 25mm galvanized wire netting and trowelled evenly followed by curry combing to give a key for mastic. When this is thoroughly dry further reinforcing with 12 mm galvanized wire netting must be tightly applied and finished with two coats of Foster C.I. Mastic 60-25 or approved equivalent, each coat being 2.0 mm thick. The finished surface is to be painted with two coats of bituminous based aluminum paint.

4 INDOOR – LIGHT DUTY FINISH

4.1 The insulation shall be canvas covered and painted with an approved oil paint. Canvas having a mass of 0.275 kg/m2 shall be used. Overlaps shall be a minimum of 25 mm and sewn smoothly with heavy thread. In the case of piping under 600 mm diameter factory manufactured canvas preformed pipe sections shall be used. In the case of vessels and equipment having a diameter greater than 600 mm, flat, or other shapes, the insulation shall be applied as required and given a smooth supercoat of an approved hard setting composition of 8 mm thickness prior to canvas covering.

5 INDOOR – HEAVY DUTY FINISH

5.1 The insulation shall be covered with two 8 mm thick coats of an approved hard setting composition. The first coat shall be reinforced with 25 mm galvanized wire mesh and shall be finished with rough surface and allowed to dry thoroughly before application of the second

coat, which shall be trowelled to a smooth finish. When thoroughly dry, it shall be painted with two coats of an approved oil paint.

5.2 The insulation shall be covered with two coasts of resin rich water based elastomeric copolymer compound containing inert pigments. Each layer shall have a minimum thickness of 0.8 mm and shall be reinforced with an open weave fiberglass scrim cloth having a mass of 0.45 kg/m2.

6 HARD SETTING COMPOSITION

6.1 Hard setting composition shall not be regarded as basic insulation and shall be used for supper coating only. It shall not crack or deteriorate during service and shall be supplied in dry form and mixed with clean water. It shall comply with BS1589 of 1950.

If there is any clarity seeking questions on this, Engineer, Werner Ludwick is available for assistance: werner.ludwick@necsa.co.za