| ROCKWOOL/FIBERGLASS WITH METAL | HPC® COATING | | | | | | |
|---|--|--|--|--|--|--|--|
| JACKET | | | | | | | |
| INSTALLATION | 1 | | | | | | |
| Must shut down operation to install | HPC® COATING is installed without a | | | | | | |
| indst shut down operation to instatt | shutdown | | | | | | |
| INSULATION EFFECTIVENESS | | | | | | | |
| Deteriorates rapidly and loses insulating | Non-Deteriorating and does not lose | | | | | | |
| value when moisture is present plus elbows | insulating value when moisture is present plus can be sprayed on elbows and valves | | | | | | |
| & valves can not be wrapped effectively so | | | | | | | |
| heat losses are significant in these areas | reducing the significant heat losses through these areas | | | | | | |
| CRACK DETECTION | <u>I</u> | | | | | | |
| M/h an a nine areals the antina lacket and | When a pipe cracks, it can be inspected | | | | | | |
| When a pipe cracks, the entire Jacket and | directly on the spot without removal and | | | | | | |
| RockWool or Fiberglass must be removed and repaired which requires downtime | easily repaired by spraying or trowel | | | | | | |
| and repaired willer requires downtime | application | | | | | | |
| CONDENSATION - DEW POINT CALCULATO | <u>DR</u> | | | | | | |
| High due to the air trapping characteristics of | No condensation due to complete surface | | | | | | |
| RockWool/Fiberglass | bond | | | | | | |
| CORROSION UNDER INSULATION (CUI) | 1 | | | | | | |
| High due to condensation problem | No condensation thus no corrosion | | | | | | |
| REPAIR | | | | | | | |
| Must shut down operation to repair | No repair is necessary for HPC® COATING | | | | | | |
| MAINTENANCE COSTS | | | | | | | |
| High due to frequent maintenance required | Low as HPC® COATING is directly sprayed | | | | | | |
| for condensation & corrosion control plus | without plant shut down plus the labour and | | | | | | |
| high down time, labour and material costs | material cost are much lower | | | | | | |
| LIFE SPAN | | | | | | | |
| | | | | | | | |

| Lasts about 6 months | Several years |
|----------------------|---------------|
| | |

Note: The cost comparison between Rockwool/Fiberglass vs. HPC® COATING coating for hot pipes should be made with respect to the total costs. The total costs include: material costs, installation costs, repair costs, frequency of downtime, maintenance costs, labour costs and life span. When all these costs are combined, HPC® COATING coating is superior to Rockwool/Fiberglass insulation as evident in the above comparison.

Dewpoint

The dewpoint is a measure of atmospheric moisture. It is the temperature at which air must be cooled in order to reach saturation (assuming that air pressure and moisture content are constant). As the surface of the earth cools at night, warm moist air near the ground is chilled and water vapour in the air condenses into droplets on the grass and other objects. Dew is particularly heavy on clear nights, when the earth cools rapidly. When a blanket of cloud insulates the earth, the cooling rate is slower. The greater the difference between the temperature and the dew point, the drier the air.

Air Temperature in Degrees Fahrenheit

| Air Temp °F | | % Relative Humidity | | | | | | | | | | | | | | | | | |
|-------------------|-----|---------------------|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| | 100 | 95 | 90 | 85 | 80 | 75 | 70 | 65 | 60 | 55 | 50 | 45 | 40 | 35 | 30 | 25 | 20 | 15 | 10 |
| 110 | 110 | 108 | 106 | 104 | 102 | 100 | 98 | 95 | 93 | 90 | 87 | 84 | 80 | 76 | 72 | 65 | 60 | 51 | 41 |
| 105 | 105 | 103 | 101 | 99 | 97 | 95 | 93 | 91 | 88 | 85 | 83 | 80 | 76 | 72 | 67 | 62 | 55 | 47 | 37 |
| 100 | 100 | 99 | 97 | 95 | 93 | 91 | 89 | 86 | 84 | 81 | 78 | 75 | 71 | 67 | 63 | 58 | 52 | 44 | 32 |
| 95 | 95 | 93 | 92 | 90 | 88 | 86 | 84 | 81 | 79 | 76 | 73 | 70 | 67 | 63 | 59 | 54 | 48 | 40 | 32 |
| 90 | 90 | 88 | 87 | 85 | 83 | 81 | 79 | 76 | 74 | 71 | 68 | 65 | 62 | 59 | 54 | 49 | 43 | 36 | 32 |
| 85 | 85 | 83 | 81 | 80 | 78 | 76 | 74 | 72 | 69 | 67 | 64 | 61 | 58 | 54 | 50 | 45 | 38 | 32 | T |
| 80 | 80 | 78 | 77 | 75 | 73 | 71 | 69 | 67 | 65 | 62 | 59 | 56 | 53 | 50 | 45 | 40 | 35 | 32 | |
| 75 | 75 | 73 | 72 | 70 | 68 | 66 | 64 | 62 | 60 | 58 | 55 | 52 | 49 | 45 | 41 | 36 | 32 | | Г |
| 70 | 70 | 68 | 67 | 65 | 63 | 61 | 59 | 57 | 55 | 53 | 50 | 47 | 44 | 40 | 37 | 32 | Т | | T |
| 65 | 65 | 63 | 62 | 60 | 59 | 57 | 55 | 53 | 50 | 48 | 45 | 42 | 40 | 36 | 32 | Г | | | Г |
| 60 | 60 | 58 | 57 | 55 | 53 | 52 | 50 | 48 | 45 | 43 | 41 | 38 | 35 | 32 | | | | | |
| 55 | 55 | 53 | 52 | 50 | 49 | 47 | 45 | 43 | 40 | 38 | 36 | 33 | 32 | | | | | | П |
| 50 | 50 | 48 | 46 | 45 | 44 | 42 | 40 | 38 | 36 | 34 | 32 | | | | | | | | T |
| 45 | 45 | 43 | 42 | 40 | 39 | 37 | 35 | 33 | 32 | | | | | | | | | | T |
| 40 | 40 | 39 | 37 | 35 | 34 | 32 | | | | | | | İ | | | | | | T |
| 35 | 35 | 34 | 32 | | | | | | | T | | | T | T | | T | T | T | T |
| 32 | 32 | | | | | | | | T | | | | T | T | | | T | T | T |