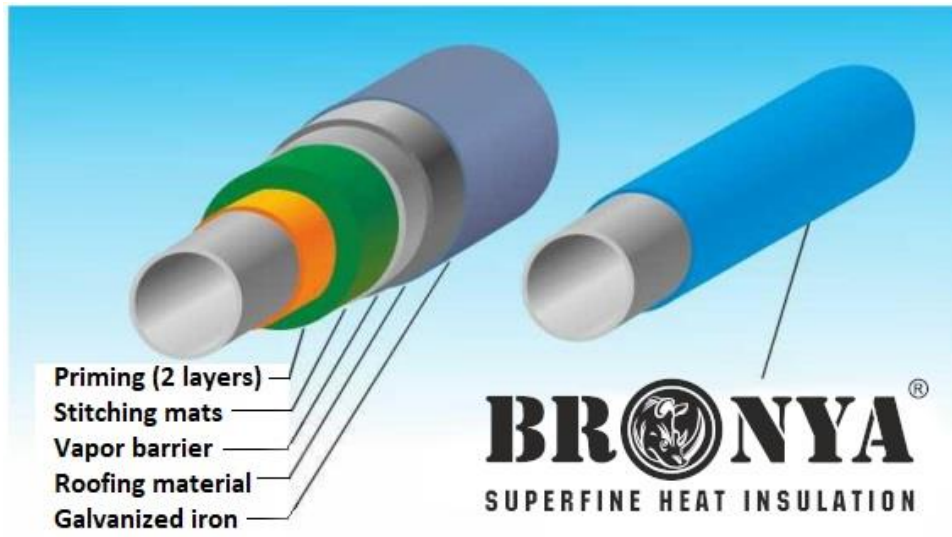# BRONYA®
SUPERFINE HEAT INSULATION

COMPARATIVE TABLE OF ECONOMIC PERFORMANCE

Use of mineral wool and superfine as heat-insulating material thermal insulation Bronya on the example of a pipeline section DN 159mm, length 1 rm, temperature 100 ° C, ambient temperature - 30 ° C.

Name indicator	Unit Rev.	Mineral cotton wool	Bronya	Difference (%)
Layer thickness *	mm	60	2	58(96,7%)
Thermal conductivity	Wm / ° C	0,041	0,001	0,040(97,6%)
Price installation including price materials and works	rub / r.m.	≈1200**	≈600**	600(50%)
Term exploitation	years	5	15	10
Heat loss	kcal / h m (Gcal / h m)	76,4 (0,0000764)	55,9 (0,0000559)	20,5 (36,8%)
Heat loss in heating period (215 days • 24 hours = 5160 hours ***) from one rm	kcal / 5160hm	394,224 (0.394 Gcal)	288,444 (0.288 Gcal)	105,780 (36.8%)

1. Based on the data in the table, it can be seen that savings in the installation of Bronya thermal insulation can make up to 50% due to the low labor intensity of work and the timing of its application. For example, for pipeline 100 r.m. the cost of installation, including the cost of thermal insulation materials, will be: Min wool: 100 r.m. · 1200 rubles / r.m. = 120,000 rubles. Bronya: 100 r.m. · 600 rubles / r.m. = 60,000 rubles.

2. Heat loss during the heating period (5160 hours) from one running meter of the pipeline, when using Bronya insulation with a layer thickness of 2 mm, 36.8% (or 0.106 Gcal) lower in compared to mineral wool insulation. For example, for a pipeline of 100 rm. heat loss will be: Min water: 0.394 (Gcal / 5160h m) · 100 (m) · 640.7 (RUB / Gcal) = RUB 25,244 / 5160h Bronya: 0.288 (Gcal / 5160h m) · 100 (m) · 640.7 (rubles / Gcal) = 18 452 rub. / 5160h

Priming (2 layers)
Stitching mats
Vapor barrier
Roofing material
Galvanized iron

Savings for the heating period, at use of Bronya or insulation will be 6 800 rubles, which is 36.85% less than at use as thermal insulation mineral wool material. TOTAL: Savings when installing 60,000 rubles. + savings for the heating period RUB 6,800 = RUB 66800

Thus, the use of the Bronya ultra-thin thermal insulation makes it possible to obtain savings of only during installation, but also after application, immediately during operation. Considering the above, as well as the service life of the Bronya material, it can be concluded that the material is highly efficient not only for its thermophysical properties, but also for economic points of view.

* - the thickness of the Bronya layer is calculated on the basis of a material consumption of 1 liter per 1 m2 with a thickness of 1 mm. So Thus, for DN 159mm (1 rm = 0.5m2), the layer thickness will be 2 mm. Calculation of insulation thickness based on the norms SNiP 41-103-2000 showed the thickness of the layer Bronya 1.6 mm.

** - for new pipelines that do not require dismantling of old insulation

*** - the number of days of the heating period according to the website of the Verkhne-Volzhsky UGMS http://www.meteo.nnov.ru/