Results

Resistivity of AluGlass
Is ρ= (6.88 ± 0.76)*10-8 Ω*m
AluGlass temperature coefficient of resistance
Is α = (0.000156 ± 0.0001) K^{-1}

Table 4. Properties of AluGlass and other materials.

Properties	Aluminum	Manganin	Constantan	AluGlass
Density, kg/m^3	2700	8400	8800	2020
Resistivity, $\Omega*m*10^{-8}$	2.8	45	48	6.9
Temperature coefficient of resistance, K^{-1}	0.004	0.00002	0.00003	0.000156

AluGlass can be a substitute for manganin and constantan.

Conclusion

- **If we melt metal with semiconductor (aluminum with silicon dioxide) we will get a new thermostable material - *AluGlass*.**
- **The optimal mass ratio of glass and aluminum for the production of this thermostable material is 3:5.**
- **The *AluGlass* crystallization in the conditions of uniform electric field makes its resistance less dependent on temperature.**
- **Municipal solid waste (aluminum cans and cullet) can be used for the production of *AluGlass*.**

Density: **AluGlass is 4 times lighter** than manganin and constantan**.**

Resistivity: **resistance is 7 times lower** than that in manganin and constantan**.**

Thermal stability: **temperature coefficient of resistance** is 33 times lower than that in aluminum, and **is comparable** with that in manganin and constantan.

Perspective:

AluGlass

Production Enterprise Scheme from Municipal Solid Waste (MSW)

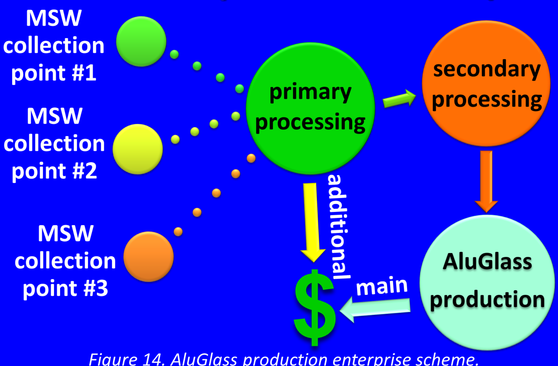

Figure 14. AluGlass production enterprise scheme.

Collection point for MSW

- Several points are situated near huge trading centers.
- MSW is collected and sorted here.

Primary processing station

- MSW is pressed.
- Sale of pressed old paper and pressed plastic bottles can give additional profit.

Secondary processing station

- Pressed aluminum cans and cullet are crushed.

AluGlass production station

- Production of AluGlass.
- Sale of AluGlass gives main profit.

Cost Efficiency

28$ Manganin

22$ Constantan

0.64$ AluGlass

AluGlass is 44 times cheaper than manganin, and 34 times cheaper than constantan.