Brand Name	ISABEL	.LIN®A 1)						
Material Code								
Abbreviation	CuMn13AI							
	mposition (ma les of alloy co		s) in %.					
Cu	Mn	Al						
Rem.	12.5	3						

## **Features and Application Notes**

ISABELLIN®A is in the best tradition of Isabellenhütte's precision resistance alloys ZERANIN® 30, MANGANIN®, NOVENTIN® and ISAOHM®. ISABELLIN®A is especially characterized by a high resistivity and a low temperature coefficient of resistance between +20°C and +60°C with a parabolic behavior of the R(T) curve. ISABELLIN®A is excellently suitable for the production of standard resistors with a maximum working temperature in air of +140°C. It is also suitable for heating elements with low conductor temperatures up to 200°C in non-oxidizing atmosphere.

Due to its low melting point, ISABELLIN®A is also proved successfully for years in thermal spraying applications, e.g. heating layers and heated surfaces.

## **Form of Delivery**

ISABELLIN®A is supplied in the form of round wires in the range of 1 to 6 mm Ø in bare annealed condition.

### **Electrical Resistance in Annealed Condition**

Temperature coefficient of electrical resistance between	Electrical resistivity in $\Omega$ xmm²/m at Reference Values						
+20°C and +60°C 10-6/K	+20 Nom. value	)°C Perm. value [%]	+100°C	+300°C	+400°C Reference values	+500°C	
±50	0.50	+10	0.50	-	-	-	

## **Physical Characteristics (Reference Values)**

Density at +20°C	Melting point	Specific heat at +20°C	Thermal conduc- tivity at +20°C	Average linear thermal expansion coefficient between +20 °C and		Thermal EMF against copper at	
•••••	•••••			+100°C	+400°C	+20°C	
g/cm³	°C	J/g K	W/m K	10 <sup>-6</sup> /K	10 <sup>-6</sup> /K	μV/K	
8.0	+940	0.42	-	18	-	≤ -1	

## Strength Properties at +20°C in Annealed Condition

Elongation (L <sub>0</sub> = 100 mm) % at nominal diameter in mm
Over 1 min.
25

<sup>1)</sup> ISABELLIN® is a registered trademark of Isabellenhütte Heusler GmbH & Co. KG.

# Precision resistance alloys:

	ZERANIN®30	MANGANIN®	ISOTAN®	ISABELLIN® A	NOVENTIN®	CENTANIN®	ISA0HM®
resistivity [ $\mu\Omega^*$ cm]	29	43	49	50	90	100	132
low TCR	•	•	•	lacktriangle	•	•	•
low thermal EMF	•	•	0	0	•	0	0
solderability / workability	•	•	•	•	•	•	0



