

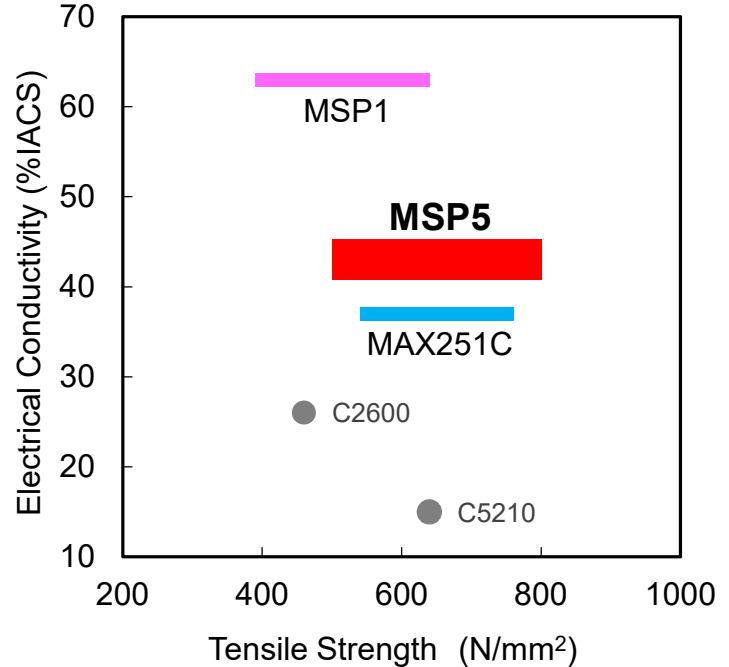
MSP5

CDA alloy No.C18670

1. Features

- Excellent balance of yield strength and electrical conductivity
- Equivalent or higher stress relaxation resistance to Corson alloy
- Excellent bending formability and blanking workability
- Reasonable cost-effectiveness
 - Expensive metals such as tin and nickel are not contained.
 - 5% lower specific gravity than pure copper
- Suitable substitute for phosphor bronze and Corson alloy

4. Positioning of Alloy



2. Chemical composition

(Weight%)

Mg	Cu
1.6	Rem. *

* Including inevitable impurities and trace additive elements

3. Physical properties

Property	Representative Value
Specific Gravity (293 K)	8.5
Coefficient of Thermal Expansion (/K : 293~573 K)	18.2×10^{-6}
Thermal Conductivity (W/(m·K) : 293 K)	174
Electrical Conductivity (%IACS : 293 K)	43
Modulus of Elasticity (kN/mm² : 293 K)	105
Poisson's ratio (293 K)	0.35

5. Mechanical properties

	Temper				Typical values (L.D./T.D.)			
	1/2H	H	EH	SH	1/2H t:0.64mm	H t:0.15mm	EH t:0.15mm	SH t:0.15mm
Tensile Strength (N/mm²)	485~ 585	530~ 630	575~ 675	620~ 720	543 / 565	593 / 645	625 / 695	677 / 780
0.2% Yield Strength (N/mm²)	-	-	-	-	507 / 512	543 / 592	585 / 647	636 / 735
Elongation (%)	5 min.	4 min.	3 min.	3 min.	11 / 16	9 / 14	7 / 12	7 / 10
Elastic Limit Kb _{0.1} *1 (N/mm²)	-	-	-	-	(524)	(609)	(712)	(764)
Vickers Hardness*2 (HV)	(145~ 205)	(160~ 220)	(175~ 235)	(190~ 250)	(178)	(193)	(203)	(219)

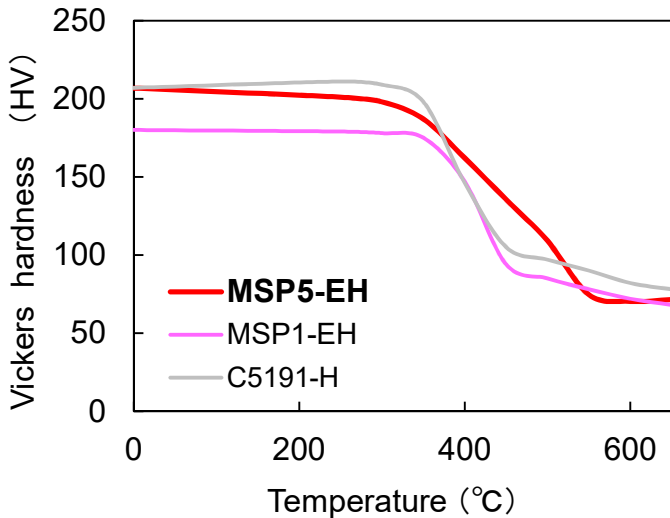
* 1 Sampling direction : T.D.

* 1, 2 Reference value

MSP5

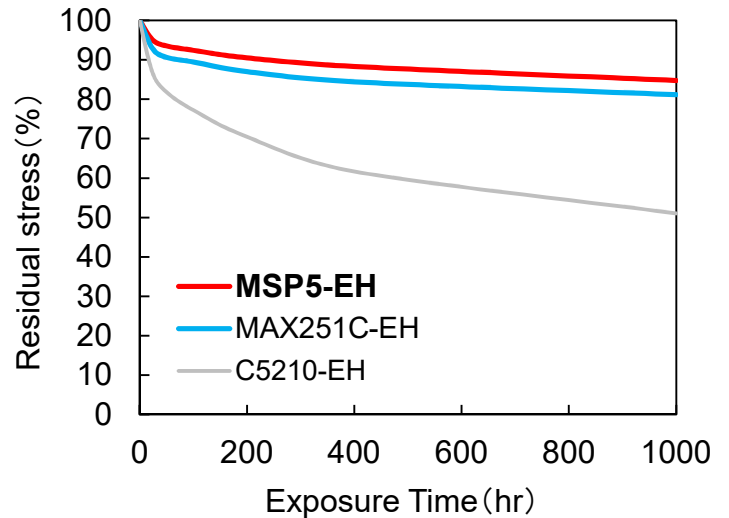
CDA alloy No.C18670

6. Resistance to Softening



Exposure time: 1hr

7. Stress relaxation resistance



Exposure temperature: 150°C Sampling direction: T.D.
Bending stress: 80% for 0.2% yield strength

8. Bendability

Specimen : Thickness=0.15mm Width=10mm Test conditions : 90° W-Bend Load=9.8kN

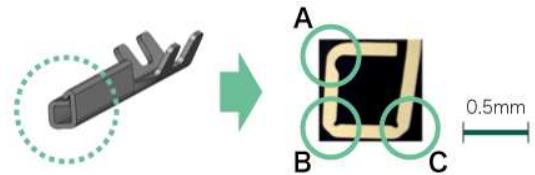
Temper	Sampling direction (to the rolling direction)	Bending radius R (mm)							R/t
		0.0	0.1	0.15	0.2	0.25	0.4	0.6	
H	0° : (Good way)	△	△	△	△	△	○	○	0.0
	90° : (Bad way)	▲	△	△	△	△	△	△	0.7
EH	0° : (Good way)	△	△	△	△	△	○	○	0.0
	90° : (Bad way)	▲	▲	△	△	△	△	△	1.0

Evaluation : ○Minor rough surface (Acceptance), △Rough surface (Acceptance),
▲Minor crack (Rejection), × Major crack (Rejection)

Cross-sectional observation

The cross section of automotive 0.50 terminal is shown on the right.

Due to its excellent bendability, MSP5 is suitable for small terminal used in automobile, consumer products and other industrial fields.



9. Low specific gravity.

The specific gravity of MSP5 is around 5% smaller than that of pure copper and Corson alloy.

Comparing with the same weight, the length of MSP5 is 5% longer than pure copper, which makes it possible to produce more terminals accordingly.

