MITSUBISHI MATERIALS

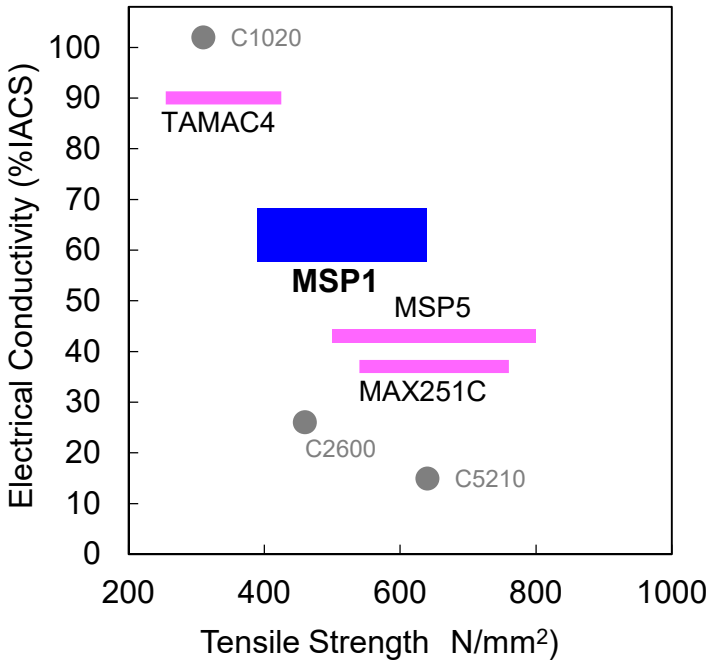
MSP1

CDA alloy No.C18665

1. Main features

- ☐ Good electrical conductivity and strength.
- ☐ Excellent stress relaxation resistance.
- ☐ Excellent stress corrosion cracking resistance.
- ☐ Excellent fatigue properties.

4. Positioning of Alloy



2. Chemical composition

(Weight%)

Mg	P	Cu
0.5 ~ 0.9	0.04 max.	Rem*

* Including inevitable impurities and trace additive elements

3. Physical properties

Property	Representative Value
Specific Gravity (293 K)	8.8
Coefficient of Thermal Expansion (/K : 293～573 K)	17.3 × 10^{-6}
Thermal Conductivity (W/(m·K) : 293 K)	264
Electrical Conductivity (%IACS : 293 K)	63
Modulus of Elasticity (kN / mm^2 : 293 K)	125
Poisson's ratio (293 K)	0.32

5. Mechanical properties

	Temper					Typical values			
	1/4H	1/2H	H	EH	SH	1/4H	1/2H	H	EH
Tensile Strength (N/mm^2)	365~450	420~510	480~570	540~630	590 min.	399	459	530	585
0.2% Yield Strength (N/mm^2)	300~410	370~480	440~550	490~620	540 min.	328	432	494	560
Elongation (%)	15 min.	10 min.	7	5	-	25.1	14.6	10.7	7.7
Elastic Limit $Kb_{0.1}$ ※1 (N/mm^2)	-	325 min.	375 min.	390 min.	410 min.	290	349	367	424
Vickers Hardness ※2 (HV)	90~140	120~170	150~190	170~210	180 min.	126	144	162	178

※1 Sampling direction : T.D.
※1, 2 Reference value

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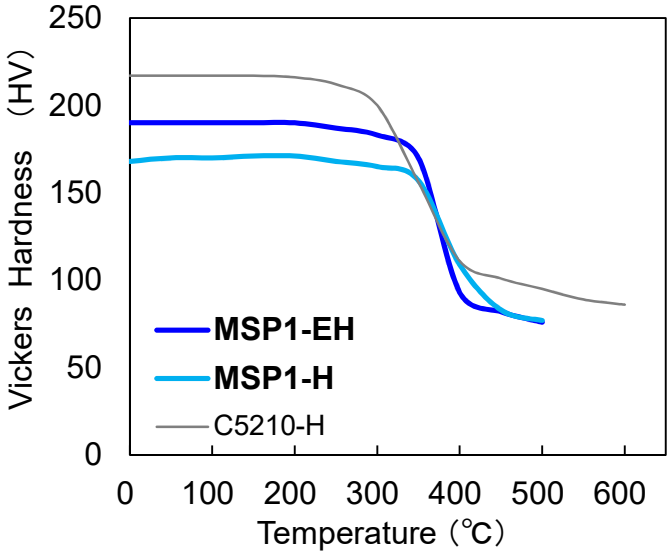
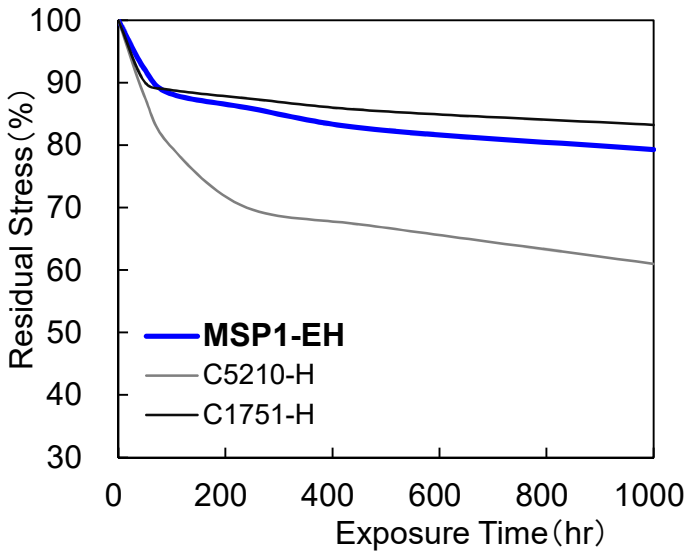
6. Resistance to Softening



Exposure Time: 1hr

7. Stress relaxation resistance



Exposure Temperature : 150℃ Sampling Direction : L.D.
Bending Stress : 80% of 0.2% yield strength

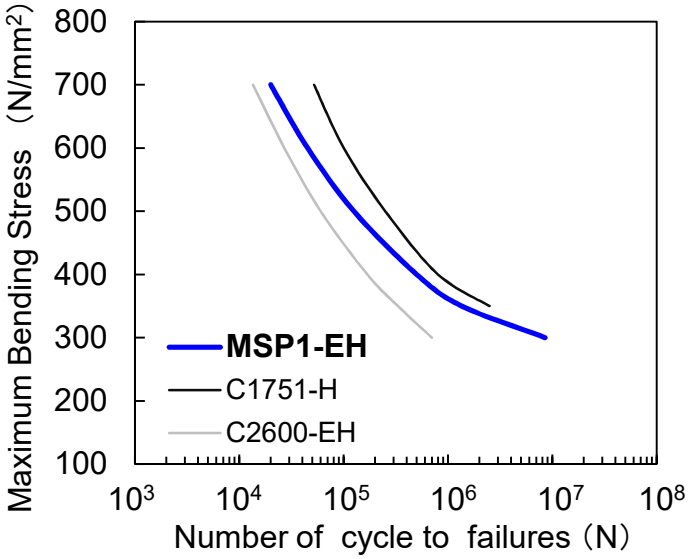
8. Bendability

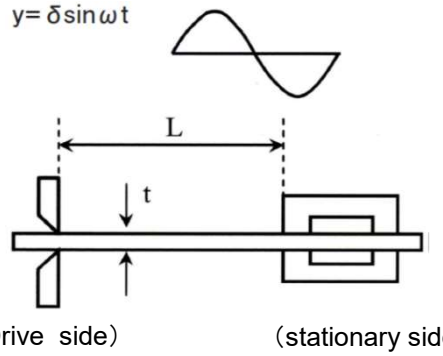
Specimen: Thickness t= 0.3mm Width10mm Test Method:90° W-Bend Load : 9807N

Temper	Sampling Direction (to the rolling direction)	Bending Radius(mm) R										R/t
		0.0	0.1	0.125	0.15	0.2	0.25	0.4	0.6	0.8	1.0	
1/2H	0°: Good Way	○	○	○	○	◎	◎	◎	◎	◎	◎	0.00
	90°: Bad Way	△	△	○	○	○	○	◎	◎	◎	◎	0.00
H	0°: Good Way	△	○	○	○	○	○	◎	◎	◎	◎	0.00
	90°: Bad Way	▲	△	△	△	○	○	○	◎	◎	◎	0.33
EH	0°: Good Way	△	△	△	△	△	○	○	◎	◎	◎	0.00
	90°: Bad Way	▲	▲	▲	▲	▲	△	△	◎	◎	◎	0.83

Method of evaluation: ◎Good (Acceptance),○Minor rough surface (Acceptance),△Major rough surface (Acceptance),
▲Minor crack (Rejection), × Major crack (Rejection)

9. Fatigue properties





Calculation of formula of Bending stress
: σ = 3/2 ・[(E・t)/L2] ・δ
E: Modulus of Elasticity of specimen (N/mm²)
t: Thickness of specimen (mm) L : Length of specimen (mm)
δ: Half amplitude on specimen (mm) ※2mm

MITSUBISHI MATERIALS
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