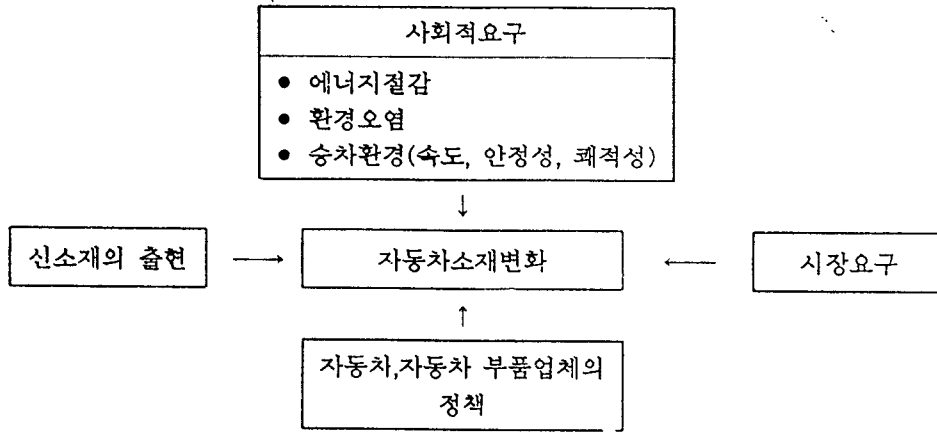


Present Status of Lightweight Materials as Partnerships of Next Generation Vehicles

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Greenhouse Effects

$$(3) \quad GWP_i = \frac{\int_0^T a_i C_i(t) dt}{\int_0^T a_{ref} C_{ref}(t) dt}$$

$$(4) \quad GE = \sum_i GWP_i m_i$$

where T = Time horizon (100 years)
 $C_i(t)$ = Concentration of substance i at time t
 a_i = Mass effect of substance i

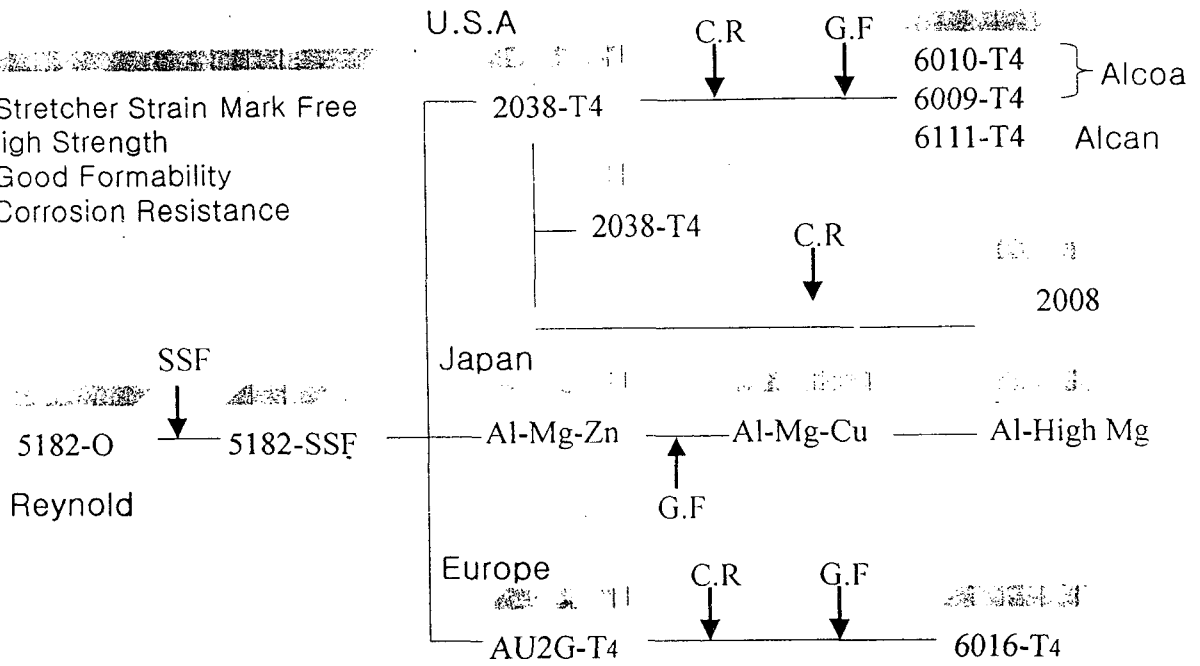
Typical Composition & Mechanical Characteristics of the Steel

	Type	C	Mn	P	Si	Al	Cr	Nb	Other	YS (Mpa)	TS (MPa)	El. (%)	Uel (%)
Soldur355	HSLA	0.05	0.35	-	-	0.03	-	0.025	-	420	460	30	18
HR55	HR	0.14	1.15	-	-	0.04	-	-	-	450	575	30	14
DP55	DP	0.08	0.5	0.07	0.28	0.04	0.5	-	-	370	590	28	18
Solform800	ULCB	0.04	1.8	-	0.25	0.03	-	0.055	Mo,Ti,B	670	830	17	08

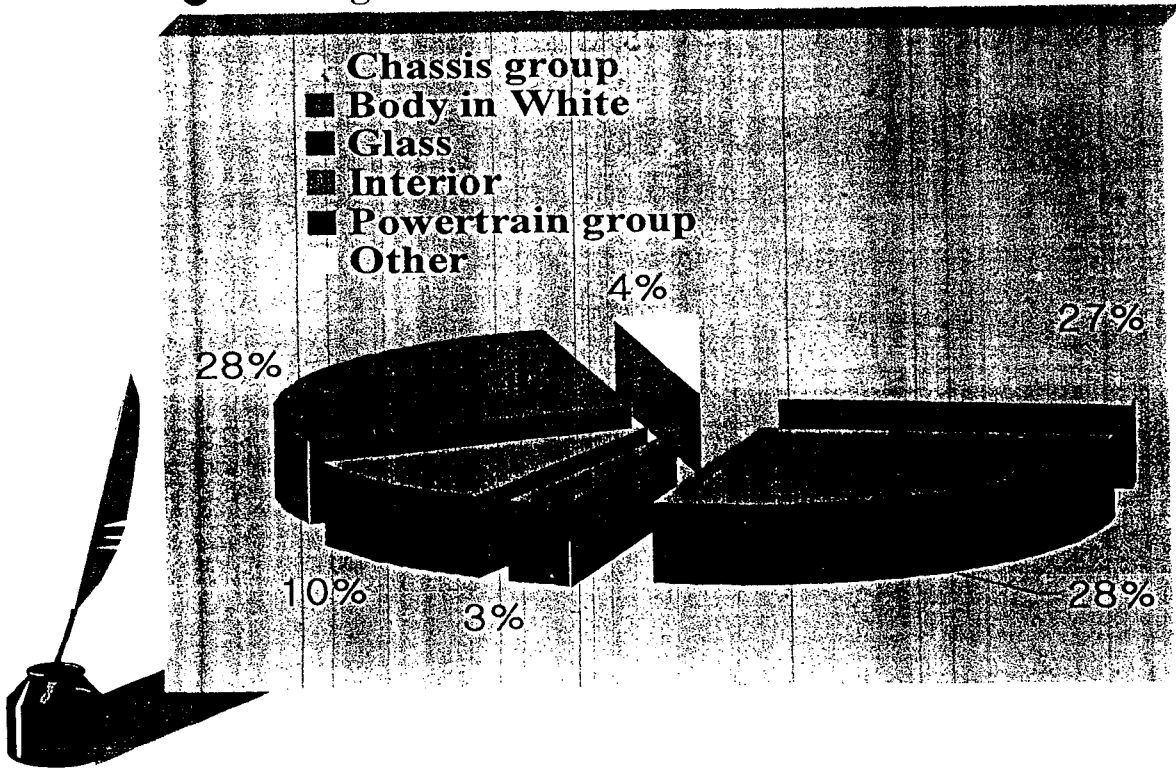
HSLA - *High Strength Low Alloy*
 HR - *High Resistance*
 DP - *Dual Phase*
 ULSB - *Ultra Low Carbon-bainitic*

Trend of Development of Auto body Sheet

SSF : Stretcher Strain Mark Free
 HS : High Strength
 G.F : Good Formability
 C.R : Corrosion Resistance



● Passenger Car Mass Distribution



● HIGH TEMPERATURE TENSILE PROPERTIES IN Mg ALLOYS WITH HEAVY RARE EARTH ELEMENTS

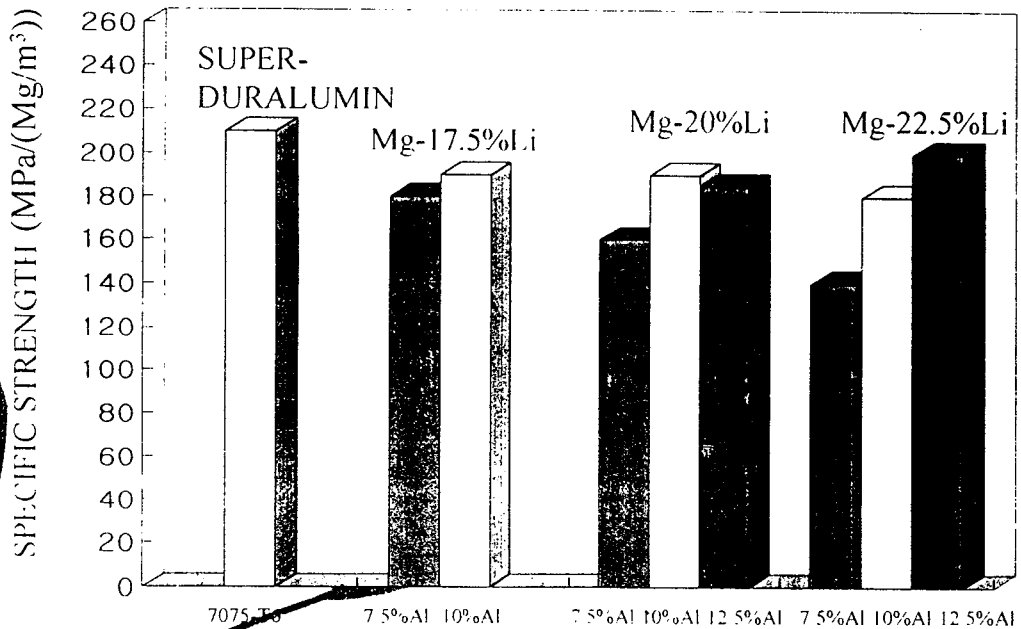
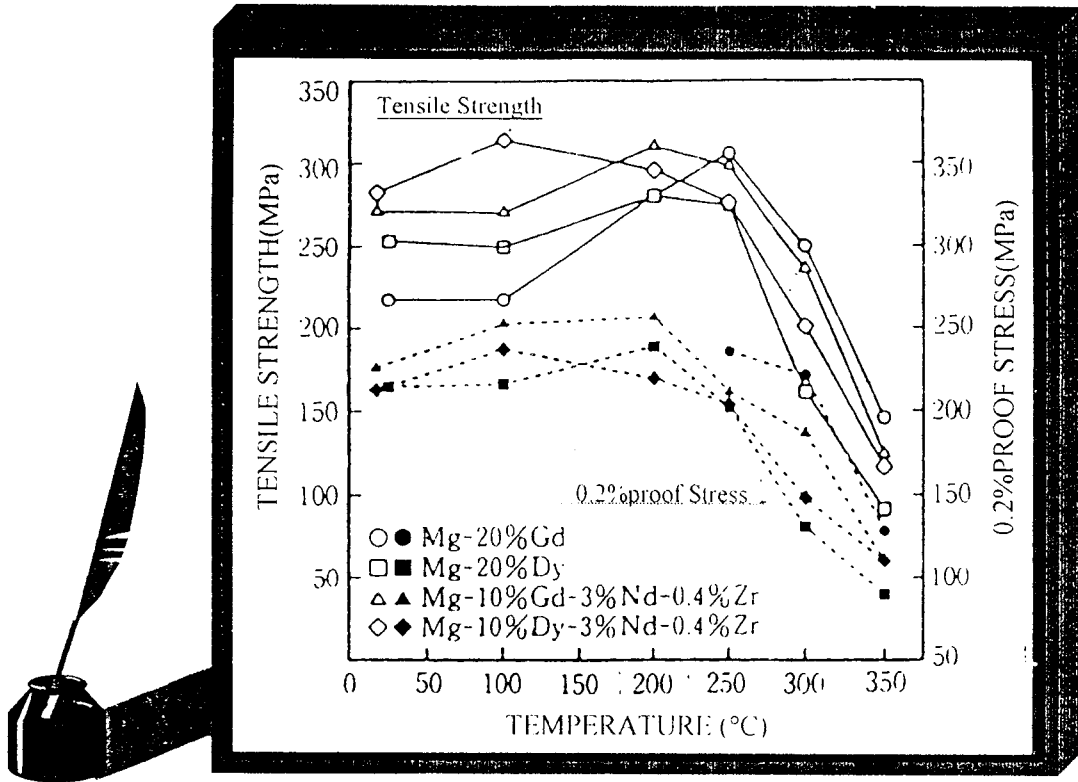


Fig. SPECIFIC STRENGTH OF Mg-Li-Al ALLOYS