ISO-9001
ISO-14001

Epoxy Resin MEC8243

YD-128 Standard Liquid Epoxy Resin

General Description

YD-128 is a liquid type standard Epoxy Resin derived from Bisphenol-A. It has excellent adhesion, chemical resistance, heat resistance, etc. Due to its special properties, YD-128 is generally used in many fields. YD-128 is the most standard liquid resin for general use.

Resin Properties

Item	YD-128	Test Method
EEW(g/eq)	184-190	KD-AS-001
Viscosity(cps at 25°C)	11,500-13,500	KD-AS-005
Hy-Cl(wt.%)	0.05 max.	KD-AS-010
Specific Gravity*1(20°C)	1.17	KD-AS-040
Color(G)	0.5 max.	KD-AS-025

*1 Reference data

Usage of YD-128

YD-128 is cured together with the various hardeners (Polyamide resin, Aromatic Polyamine, Aliphatic Polyamine and Anhydride Compound). Depending on diluents and other additives, different physical properties after curing can be obtained. Generally, YD-128, clear liquid form of the standard Epoxy Resins is widely used in many fields such as:

1. Paints :

Electrodeposition coating, Ambient curing coating, Clear coating, Anti-corrosion coating

2. Electrical and Electronic fields :

Casting, Dipping, Encapsulation, Laminates, Condenser and Resistor coating

3. Civil Construction and Buildings :

Cementing concrete structure, Water proof, Anti-corrosion road pavement, Repair bond for joint, Grouting material.

4. Adhesive :

Metal, Glass, Wood, and Stone adhesives.

5. Filament winding, Glass fiber reinforcement resin.

6. Stabilizer for polyvinyl chloride.

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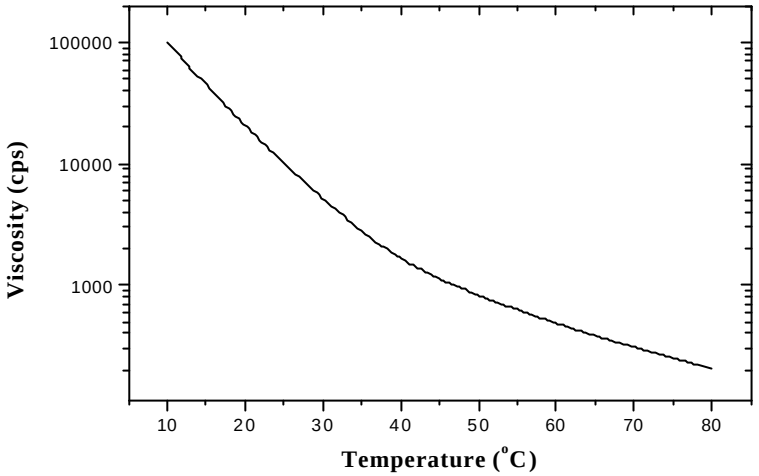
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Relation Between Temperature and Viscosity

Viscosity is reduced according to the increase of temperature.

Temperature and Viscosity relationship of YD-128 is as follows.



Properties of Cured YD-128 and DOMIDE (HARDENER)

YD-128 / Domide cured properties

Test Item \ Hardener	G - 1034	G - 0331	G - 0240	G- A0533
Mixing YD-128/Domide Ratios.	65 / 35 phr	70 / 30 phr	75 / 25 phr	70 / 30 phr
Pot-Life(at 20°C, 200g)	120 min	130 min	90 min	100 min
Flexural Strength	8.55	3.44	4.97	8.53
Compressive Strength	8.17	5.76	6.27	6.23
Tensile Strength	5.43	3.08	1.62	3.36
Adhesive Strength	109	116	-	64
Impact Strength	4.18	1.68	1.14	1.90
H.D.T (°C)	58.0	46.0	-	48.0
Hardness, M Scale	48.0	Shore D85	-	46.5
Water	0.145	0.201	0.123	-

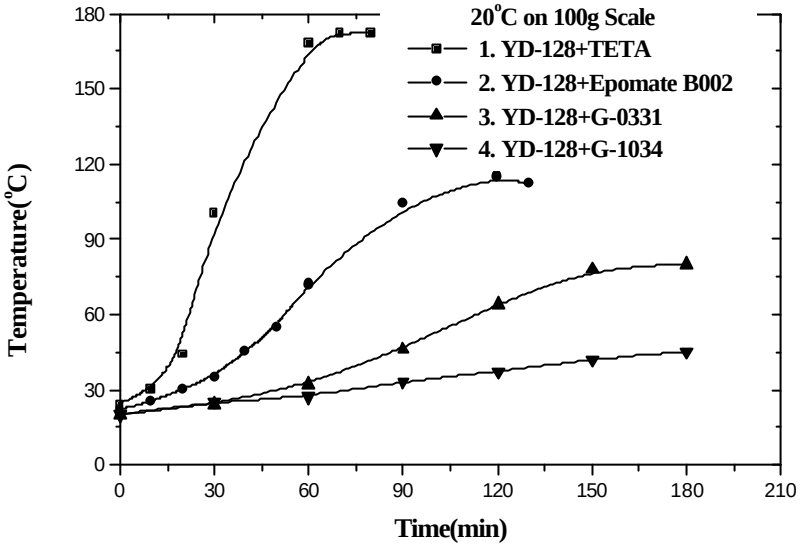
Caution : The above mixing ratio is generally used. According to the curing condition, increase of hardener in few more percent range is safety.

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Exotherm Profile (YD-128) & Each Type Hardeners



The choice of hardener is the most important. Cured Epoxy Resin makes different physical properties according to various hardeners. And exotherm profile(pot life), curing condition and operation condition can be decided by the choice of hardener.

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Characteristics of Cured "YD-128 & HARDENERS"

Heat cure : 90°C 2hrs + 150°C 4hrs

Curing Agents (Hardeners)		DAM	HHPA	MNA
Adding Amount	PHR	27	75	90
Type / Item	Unit	YD-128	YD-128	YD-128
Pot-Life	Min	30	40 *2	120 *2
Flexural Strength	Kg/cm^2	1,012	1,138	1,177
Tensile Strength	-	609	779	614
Compressive Strength	-	1,250	1,190	1,341
Impact Strength (Charpy)	$Kg\ cm/cm^2$	5.9	7.7	7.2
Adhesive strength	Kg/cm^2	64	89	89
Hardness (Rockwell)	M Scale	112.4	105	111.0
H.D.T.	°C	168	124	128
Volume Resistivity	ohmcm20°C	3.4×10^{16}	1.0×10^{17}	3.2×10^{16}
	ohmcm100°C	-	2.6×10^{15}	2.6×10^{15}
Surface Resistivity	ohmcm20°C	2.0×10^{17}	4.3×10^{17}	2.0×10^{17}
	ohmcm100°C	-	3.1×10^{17}	2.0×10^{15}
Dielectric Constant	60 Hz 20°C	4.5	3.4	3.7
	10^3Hz 20°C	4.4	3.4	3.6
	10^6Hz 20°C	3.8	3.2	3.5
Dissipation Factor Tan ø	60 Hz 20°C	0.9×10^{-2}	5.4×10^{-3}	1.5×10^{-3}
	10^3Hz 20°C	2.0×10^{-2}	1.3×10^{-2}	3.9×10^{-3}
	10^6Hz 20°C	3.2×10^{-2}	1.4×10^{-2}	2.3×10^{-2}
Arc-Resistance	Sec	135	120	70
Dielectric Strength	KV/mm	22.3	21.7	17.0
Water Absorption	%	0.17	0.11	0.13

*1 On 200g scale

*2 BDMA, 0.5% added

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Characteristics of Cured "YD -128 & HARDENERS"

Room temperature curing :

The ratios of hundred parts resins to different parts hardeners(TETA, Polyamide) by weight being cured after 7 days at 20°C

Curing Agents	-	TETA			Domide(A.V: 350)		
Adding Amount	PHR	10			50		
Type / Item	Unit	YD-115	YD-127	YD-128	YD-115	YD-127	YD-128
Pot-Life	Min	50	50	50	130	130	130
Flexural Strength	Kg/cm^2	630	450	470	410	580	780
Tensile Strength	-	360	230	250	380	370	400
Compressive Strength	-	1020	1115	1160	520	642	636
Impact Strength	$Kg\ cm/cm^2$	1.8	1.1	1.2	2.3	2.0	2.1
Adhesive strength (Iapshear)	Kg/cm^2	62	40	42	77	62	65
Hardness (Rockwell)	(M,P)Scale	P 57	P 60	P 61	M 72	M 77	M 80
H.D.T.after14 days	°C	46	54	55	39	42	43
Volume Resistivity	Ohmcm20°C	1.7×10^{15}	1.0×10^{16}	0.7×10^{16}	-	-	-
	ohmcm100°C	1.2×10^{10}	3.5×10^{11}	1.5×10^{11}	-	-	-
Surface Resistivity	ohmcm 20°C	5.6×10^{14}	3.5×10^{14}	2.2×10^{16}	-	-	-
	ohmcm100°C	2×10^{14}	4.4×10^{11}	1.9×10^{12}	-	-	-
Dielectric Constant	60 Hz 20°C	4.1	4.1	5.5	-	-	-
	10^3Hz 20°C	4.0	4.1	5.2	-	-	-
	10^6Hz 20°C	3.3	3.9	4.3	-	-	-
Tanø Dissipation Factor	60 Hz 20°C	1.2×10^{-2}	3.0×10^{-2}	1.2×10^{-2}	-	-	-
	10^3Hz 20°C	1.0×10^{-2}	5.3×10^{-3}	0.8×10^{-1}	-	-	-
	10^4Hz 20°C	1.9×10^{-2}	1.9×10^{-2}	2.1×10^{-2}	-	-	-
Arc-Resistance	sec	-	-	-	-	-	-
Dielectric Strength	KV/mm	-	-	-	-	-	-
Water Absorption	%	-	0.40	0.41	-	-	-

Test method depends on JIS-K-0911 and ASTM with 100gr scale.

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Chemical Resistance of Cured "YD-128 & HARDENER"

Hardener	TETA		DDM		MNA	
Adding Amount	10PHR		30PHR		80PHR*1	
Curing Conditions	25°C 24Hrs + 100°C 1Hr		90°C 24Hrs + 150°C 1Hrs		90°C 24Hrs + 100°C 3Hr	
Day / Chemical name	10 days	30 days	10 days	30 days	10 days	30 days
Hydrochloric Acid 10%	0.66	1.51	0.36	0.77	0.11	0.32
Hydrochloric Acid 37%	1.01	1.38	1.21	3.24	0.22	0.97
Sulfuric Acid 10%	0.87	1.42	0.43	0.98	0.25	0.56
Nitric Acid 5%	1.21	2.30	2.94	4.28	0.29	0.98
Nitric Acid 40%	6.38	x	1.07	x	0.32	1.62
Acetic Acid 10%	2.80	6.09	0.25	0.73	0.28	0.46
Citric Acid 25%	1.10	1.16	0.32	0.65	0.40	0.89
Ammonia 28%	0.39	1.03	0.43	0.92	0.51	1.21
Caustic Soda 25%	0.05	0.08	0.20	0.34	0.31	0.88
Acetone	0.26	1.47	2.96	6.58	3.81	9.31
Ethyl alcohol	0.26	0.29	0.02	0.20	0.22	0.39
Benzene	0.03	0.07	0.08	0.22	0.93	1.72
Gasoline	0.02	0.03	0.07	0.18	0.17	0.51

*1 BDMA 0.5 PHR added

x : Broken down

Packaging

20kg Can or 200Kg D/M (Net weight)

Bulk in Tank