STANDARD CATALYSTS

CATALYST	9	11	14	15
Type	Modified aliphatic amine	Modified aromatic amine	Anhydride	Polyamide
Viscosity	80 – 100 mPa.s	35 – 60 mPa.s (at 35°C)	Powder	20 – 40 Pa.s
Colour	Amber	Tan to dark brown	White	Black
Density (g/cm^3)	0,99 - 1,01	1,0 - 1,1	0,77 – 0,79	0,95 - 0,98
Amount of Catalyst used in relation to CATALYST 9 (in x CATALYST 9)	1,00	1,20	2,5	7,0 - 21,1
Pot life (100 g at 25°C)	45 min	4 h	24 h	2 h
Shelf life at RT	1 year in unopened containers	1 year in unopened containers	1 year in unopened containers	1 year in unopened containers
Cure schedule	16 to 24 h at RT or 2 h at 65°C	2 h at 100°C + 4 h at 150°C	3 h at 150°C + 3 to 16 h at 180°C	16 to 24 h at RT or 2 h at 80°C
Service Temperature (°C) - Continuous - Intermittent	 120 150	 180 200	 180 200	 90 120
Advantages	Chemical resistant Physical Strength RT cure Low viscosity Low cost	Outstanding chemical resistance Physical strength Pot life Low viscosity High temperature performance Thermal shock resistant (in some cases)	High temperature performance Chemical resistance Pot life	RT cure Adjustable flexibility Pot life Low toxicity Wide mixing ratio Low cost
Disadvantages	Brittle (not good for low temperature) Pot life Toxicity	Elevated temperature cure Stains skin May crystallise at RT (heat to 65°C to liquify) Cost Toxicity	High temperature cure Odour	High viscosity Softens at elevated temperature
Other comments	Good all-round epoxy curative	CATALYST 11 is subject to partial crystallisation at RT To remove crystals warm gently to at least 65°C and maintain until all crystals have gone into solution Storage is possible for several days at RT without crystallisation	Keep away from moisture	Easiest epoxy curative to use Can mix with epoxy even without sophisticated weighing equipment

CATALYST	15 LV	17	23 LV	24 LV
Type	Polyamide	Anhydride	Modified aliphatic amine	Modified aliphatic amine
Viscosity	5 – 15 Pa.s	slurry (at 35°C)	20 – 30 mPa.s	30 – 40 mPa.s
Colour	Black	Blue - grey	Water-white to slight amber	Water white to slight amber
Density (g/cm^3)	0,95 – 0,98	1,3 - 1,5	1,00 - 1,03	1,00 - 1,03
Amount of Catalyst used in relation to CATALYST 9 (in x CATALYST 9)	3,5 – 14,0	2,8	2,00	2,00
Pot life (100 g at 25°C)	2 h	24 h	60 min	30 min
Shelf life at RT	1 year in unopened containers	1 year in unopened containers	1 year in unopened containers	1 year in unopened containers
Cure schedule	16 to 24 h at RT or 2 h at 80°C	3 h at 120°C + 2 h at 150°C + 16 h at 175°C	16 to 24 h at RT or 4 h at 65°C	8 to 16 h at RT or 2 h at 65°C
Service Temperature (°C) - Continuous - Intermittent	 65 90	 230 (260)	 90 120	 90 120
Advantages	RT cure Adjustable flexibility Pot life Low toxicity Wide mixing ratio Low cost	Very good high temperature performance Pot life Low viscosity	Low viscosity Low cost Thermal shock resistance Pot life Tough impact resistance Low colour	Low viscosity Thermal shock resistant Tough impact resistant Low colour
Disadvantages	Softens at elevated temperature	Elevated temperature cure High cost	Longer cure at RT than CATALYST 24 LV	Pot life Cost
Other comments	Easiest epoxy curative to use Can mix with epoxy even without sophisticated weighing equipment	CATALYST 17 may be solid at RT When warmed to 65°C, it will liquefy. Cool down to room temperature before use.		Has tendency to semi-thixotrope various epoxy systems

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STANDARD CATALYSTS

CATALYST	27-1	28	30	43
Type	Modified aromatic amine	Modified aromatic amine	Modified aliphatic amine	Imidazole / aliphatic amine
Viscosity	250 – 300 mPa.s	250 – 300 mPa.s	70 – 90 mPa.s	40 – 60 mPa.s
Colour	Brown	Brown	Slight amber	Amber
Density (g/cm^3)	1,00 – 1,05	1,00 – 1,05	0,92 - 0,96	0,90 – 1,10
Amount of Catalyst used in relation to CATALYST 9 (in x CATALYST 9)	1,75	1,75	2,70	0,75
Pot life (100 g at 25°C)	2 h	2,5 – 3 h	60 min	40 min
Shelf life at RT	1 year in unopened containers	1 year in unopened containers	1 year in unopened containers	1 year in unopened containers
Cure schedule	4 h at 120°C	4 h at 120°C	24 h at RT or 4 h at 65°C	16 to 24 h at 65°C and 2 to 4 hours at 150°C
Service Temperature (°C) - Continuous - Intermittent	 175 200	 175 200	 90 120	 205
Advantages	Chemical resistance Physical strength Pot life High temperature performance	Chemical resistance Physical strength Pot life High temperature performance	Non-blushing Resilient (more than CATALYST 9) Low viscosity RT cure Low colour	High temperature resistant Low cure temperature
Disadvantages	Elevated temperature cure Cost	Elevated temperature cure Cost	Cost	Brittleness
Other comments	Non-staining alternative for CATALYST 11 ; Cannot be used in combination with the following products : STYCAST 2057 / STYCAST 2651 MM Series / STYCAST 2741 LV / STYCAST 3050 / ECCOBOND 45 LV	Non-staining alternative for CATALYST 11	Excellent epoxy curative if appearance is important	Non-staining alternative for CATALYST 11

Health & Safety :

It is recommended to consult the Emerson & Cuming product literature, including material safety data sheets, prior to using Emerson & Cuming products. These may be obtained from your local sales office.

Note :

Please note that Technical Data Sheets may be updated from time to time. Customers are advised that the latest technical bulletins are always available upon request.

Attention Specification Writers :

The technical information contained herein is generally consistent with the properties of the material and should not be used in the preparation of specifications, as it is intended for reference only. This technical information has been derived from one batch of material and may not exactly match the properties of each individual delivered batch. For assistance in preparing specifications, please contact your local Emerson & Cuming office for details. Please contact Emerson & Cuming Quality Assurance for test method details.

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