

# NIGHTINGALE SUPPLY

PO BOX 712 HAMILTON CENTRAL QLD 4007  
PHONE 07.3260 6544 FAX 07.3260 6646  
EMAIL: nightingale1@hotmail.net.au

## TECHNICAL DATA SHEET

### ER105 WEST SYSTEM EPOXY and Hardeners

#### LAMINATING

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**Epoxy 105 RESIN** is the basis of the West System brand range on which all of the West System compounds are built. It is a low viscosity, 100% reactive, solvent free epoxy resin which finds extensive use particularly in the wood and composite boat building industry, where water and water vapour resistance are important requirements. The West System brand resin has been designed to have optimum hardness for use in conjunction with timber.

When cured with West System brand **205, 206, 207 and 209** hardeners, Epoxy 105 Resin provides the ultimate protection against moisture ingress, and is used with glass fibre or Dynal as a sheathing system where impact resistance is a requirement.

Modification with appropriate powder fillers enables this resin to be used as a thixotropic glue or a low density fairing filler, refer to the West System brand fillers and additives data sheet.

Overcoating cured West System brand resins with themselves is reliable provided the overcoated surface is clean, dry and lightly sanded to remove any amine carbonate contamination. This is simply done by using wet sandpaper or a scotchbrite pad with warm water.

**West System 205 HARDENER:** has a moderately fast cure rate and is capable of curing down to a temperature as low as 10°C where slower systems often fail through slow or incomplete cure. Full properties will not be achieved for at least a week at room temperature, although a 'hard' cure will be obtained overnight in normal conditions. This 105/205 mixture is not intended for clear coating.

**West System 206 SLOW HARDENER:** has a moderately slow cure rate giving it adhesion at temperatures above 15°C. This allows an extended working time at elevated temperatures. Below 10°C the attainment of a final cure is slow and so at low temperatures it is recommended that clamping times be as long as possible when it is used as an adhesive especially in critical applications. Not intended for clear coating.

**West System 207 SPECIAL COATING HARDENER:** has been specially developed for use with West System brand 105 Resin for coating applications where an exceptionally clear, moisture resistant, natural wood finish is desired. An ultraviolet inhibiting additive improves the resistance of a West System 105/207 mixture to sunlight, but the cured epoxy surface will still require further UV protection with a quality UV filtered varnish or a two pack of polyurethane paint. It has been designed to work well in humid conditions without clouding and provides good physical properties for bonding applications, but is more difficult to thicken and less cost effective for this purpose than 205 Fast or 206 Slow hardeners.

**West System 209 SUPER SLOW / TROPICAL HARDENER:** is formulated for use with West System 105 Epoxy resin for general coating and bonding applications in extremely warm and / or humid conditions or when extended working time is desired at room temperature. It provides approximately twice the working time of 206 Slow Hardener, and forms a clear, amber-coloured solid with good physical properties and moisture resistance for bonding and coating applications. Not intended for clear coating.

**PACKAGING:**

These products are available in the following pack sizes:

**RESIN R105 / HARDENER 205 (Fast) or 206 (Slow): MIXTURE 5:1 BY VOLUME**

600ml pack	500ml resin 100ml hardener
1.2 Lt pack	1 Litre resin 200ml hardener
4.8 Lt pack	4 Litre resin 800ml hardener
24 Lt pack	20 Litre resin 4 Litre hardener
240 Lt pack	200 Litre resin 40 Litre hardener

**RESIN R105 / HARDENER 207 (Special Coating) and 209 (Tropical): MIXTURE 3:1 BY VOLUME**

1.33 Lt pack	1 Litre Resin 330ml Hardener
5.44 Lt pack	4 Litre Resin 1.33 Litre Hardener
26.7 Lt pack	20 Litre resin 6.7 Litre hardener

**PROPERTIES OF R105 AND HARDENERS**

***Uncured Properties***

105 Resin	Physical State Viscosity @ 25°C Specific Gravity	Clear Liquid 700-1000 cps 1.15
205 Fast Hardener	Physical State Viscosity @ 25°C Specific Gravity	Clear pale amber liquid 1000-1200 cps 1.04
206 Slow Hardener	Physical State Viscosity @ 25°C Specific Gravity	Clear pale yellow liquid 600-900 cps 1.00
209 Super Slow/Tropical	Physical State Viscosity @ 25°C Specific Gravity	Amber Liquid 500-650 cps 0.98

## **RECOMMENDED MIX RATIO:**

1 part Hardener (**205 and 206**) to 5 parts resin (by weight and volume)

1 part Hardener (**207 and 209**) to 3 parts resin (by volume; refer to hardener containers for weight ratios).

NOTE: Great care should be taken when dispensing and mixing. DO NOT attempt to control the cure time by altering the hardener ratio.

## **CURE CHARACTERISTICS:**

### **205 FAST HARDENER**

Pot Life	(22°C – 100 g)	10 – 12 minutes
Cure to a solid state		6-8 hours
Cure to maximum strength		1-4 days
Mix Viscosity	(22°C)	750 cps
Shore D Hardness	1 day	80
	2 weeks	83
HDT after 15 hours at		
Room Temperature	and 8 hours @ 43°C	51°C
	and 8 hours @ 60°C	52.5°C
	and 3 hours @ 100°C	52.5°C

### **206 SLOW HARDENER**

Pot Life	(22°C – 100 g)	20 - 25 minutes
Cure to a solid state		9 - 12 hours
Cure to maximum strength		1-4 days
Mix Viscosity	(22°C)	580 cps
Shore D Hardness	1 day	80
	2 weeks	83
HDT after 15 hours at		
Room Temperature	and 8 hours @ 43°C	48°C
	and 8 hours @ 60°C	52°C
	and 3 hours @ 100°C	50°C

### **207 SPECIAL COATING HARDENER**

Pot Life	(22°C – 100 g)	20 - 25 minutes
Cure to a solid state		9 - 12 hours
Cure to maximum strength		4-7 days
Mix Viscosity	(22°C)	700 cps
Shore D Hardness	1 day	81
	2 weeks	85
HDT after 15 hours at		
Room Temperature	and 8 hours @ 43°C	48.5°C
	and 8 hours @ 60°C	50.5°C
	and 3 hours @ 100°C	51.1°C

## 209 SUPER SLOW / TROPICAL HARDENER

Pot Life	(22°C – 100 g)	40 - 50 minutes
	(35°C – 100g)	15 – 20 minutes
Cure to a solid state	@ 22°C	20-24 hours
	@ 35°C	6 – 8 hours
Cure to maximum strength		4-9 days
Mix Viscosity	(22°C)	660 cps
Shore D Hardness	1 day	79
	2 weeks	81
HDT after 15 hours at		
Room Temperature	and 8 hours @ 43°C	45.6°C
	and 8 hours @ 60°C	56.8°C
	and 3 hours @ 100°C	56°C

### **PUMPS:**

West system 301 mini pump are available for pack sizes:

1.2 L  
4.8 L  
24 L

West system 303 special ratio pumps are available for pack sizes:

1.33 L  
5.33 L  
26.7 L

### **STORAGE:**

West system Resin and Hardeners will keep for many years provided that they are kept in sealed containers and stored at room temperature (18°C to 25°C).

West system R105 Resin will exhibit a slight increase in the viscosity over time, and will therefore require extra care when mixing with the hardener.

### **HEALTH & SAFETY:**

West system brand products are generally quite harmless if the normal safety precautions are taken. West system 105 Resin rarely causes skin sensitisation. West system hardeners are considered skin irritants and sensitisers, however, their toxicity is greatly reduced when they are mixed in the proper ratio with 105 Resin. However precautions should still be taken the resins and hardeners should be kept out of the eyes and off the skin.

- Use with good ventilation and adequate safety equipment including impervious gloves.
- If skin contact occurs, wash off with water and a water based hand cleaner, avoiding the use of solvents except in the case of massive contamination.
- If eye contact occurs, immediately wash thoroughly with running water for 15 minutes and seek medical advice.
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The data in this Material Data Sheet has been compiled from our supplier's material data sheet. This data relates only to the designated product and not to the use of said product in combination with other materials. Because conditions and circumstances of use of the product are beyond our control and any summary of data such as is represented by this material safety data sheet is inherently incomplete, Nightingale Supply makes no warranty about the accuracy of the data herein and assume no liability for the use of such data. Responsibility for proper precautions and safe use of the product lies with the user.