

## System Sheet 1 – DEF STAN 80-166

### DEF STAN 80-166 Two Pack Air Drying Infra-Red Reflecting Matt Paint System For Defence Equipment

**Description** This Specification covers the requirements for an extremely durable, exterior finishing scheme providing a chemically resistant, near matt surface which exhibits specified infra-red reflecting properties complying with DEF STAN 00-23 and STANAG 2338.

The sophisticated infra-red detection devices now in common use for military purposes can measure minute temperature differences of the terrain, with great accuracy over long distances, and give a thermal image by night or day. Objects giving a different response to the surrounding country are thus easily identified. Items coated with a DEF STAN 80-166 scheme render detection by these devices more difficult. It should be noted that this scheme is intended for use in verdant terrain and is not suitable for desert, polar and other regions.

**Finish** Matt or Textured.

**Complies With** DEF STAN 80-166.

**Product Code** See Table.

**Volume Solids** Please consult Trimite.

**VOC's** Please consult Trimite.

**Colour Range** Limited colour range to DEF STAN requirements.

**Systems** The finishing scheme usually consists of one or other of the following combinations of Materials, all of which are available from Trimite. Other systems may be specified.

Scheme	System
(where specified)	Etch Primer (as 1 <sup>st</sup> coat for any below system)
Near Matt IRR Finish	Two Pack Epoxy Primer, Two Pack Polyurethane Finish
Textured Finish	Two Pack Epoxy Primer, Two Pack Epoxy Undercoat

**Film Thickness, Coverage & Overcoating**

Coating Type	Dry Film Weight g/m <sup>2</sup>	Dry Film Thickness µm	Coverage m <sup>2</sup> /l	Minimum Air Drying before Overcoating	Remarks
Etch Primer	20 – 25 g/m <sup>2</sup>	10 – 12 µm	6 – 7	2 h	If specified or for repair
Epoxy Primer to DEF STAN 80-184	25 – 35 g/m <sup>2</sup>	13 – 18 µm	11 – 15	8 h	Apply over a suitable pretreated surface
Epoxy Textured Undercoat	45 – 55 g/m <sup>2</sup>	25 – 35 µm	7 – 9	4 h	-
Polyurethane Near Matt Finish	55 – 65 g/m <sup>2</sup>	40 – 45 µm	7 – 8	6 h	Two coats are normally specified

The coverage figures shown take account of normal spraying losses.

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##### Force Drying

When it is required to accelerate the drying process, temperatures up to 70°C may be used, but final finishing coats must be allowed to dry at room temperature for at least one hour prior to force drying.

##### Surface Preparation

- All surfaces should be dry and cleaned as necessary to remove all oil, grease, corrosion or other contamination.
- Surfaces must be cleaned in accordance with DEF STAN 03-2.
- When an etch primer is specified, **Trimate SAP2** (Base Component SAP2 and Acid Component SAR2) is recommended.

##### Mixing

All DEF STAN 80-166 materials are supplied in two parts, a Base and a Curing Agent. It is essential that mixing instructions, given in this sheet and also found on the labels, are followed. The correct Thinner must be used.

All materials should be at shop temperature (15°C - 25°C) before mixing. Prior to use, ensure that individual components are of uniform consistency by mechanical shaking or thorough stirring. Mix as detailed in the Table below (see 'Mix Ratio & Thinning'), ensuring that the resultant blend is thoroughly stirred.

All unused blended materials should be discarded after 8 hours at normal paint shop temperatures. The pot life will significantly decrease at temperatures above 25°C.

##### Pot Life at 20°C

SAP2 Etch Primer: 10 – 12 h.  
All other products: 8 h.

##### Mix Ratio & Thinning

Coating Type	Base	Curing Agent	Mix Ratio by Volume	Thinner for spray	Viscosity BS B4 Cup (sec)	Viscosity BS B3 Cup (sec)	Pot Life at 20°C (h)
<b>Etch Primer (Yellow)</b>	98/SAP2	SAR2	1 : 1	SAT2	20 - 25	35 - 45	10 – 12 h
<b>Epoxy Primer AP45 to DEF STAN 80-184 (Mid-Grey)</b>	41/AP45	J4501	2 : 1	AT46	25 - 30	45 - 60	8 h
<b>Epoxy Textured Undercoat</b>	D91080 or D00318	J9802	2 : 1	AT98	25 - 30	45 - 60	8 h
<b>Polyurethane Near Matt Finish</b>	D00294 or other shade	D00335	2 : 1	n/a	n/a	n/a	8 h

- If applying by roller, please consult Trimate.
- Trimate AP45 meets the corrosion requirements of DEF STAN 80-184.
- Epoxy Textured Undercoat – D91080 is AFS 1871 Light Bronze Green, D00318 is Black.
- Polyurethane Near Matt Finish – D00294 is NATO Green, other shades to DEF STAN requirements are available.

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<b>Application Conditions</b>	DEF STAN 80-166 paints should only be applied in paint shops where the temperature is between 15°C and 25°C and the relative humidity between 30% and 75%. Surfaces to be painted should be allowed to reach shop temperatures.
<b>Application Details</b>	<ul style="list-style-type: none"> <li>DEF STAN 80-161 (Trimite A98) paints are normally applied using conventional spray techniques.</li> </ul>
<b>Thinner/Cleaner</b>	Thinner AT98 (for cleaning).
<b>SG</b>	varies with product.
<b>Flash Point</b>	See Table below.
<b>Shelf Life</b>	Minimum of 1 year from date of receipt when correctly stored in unopened containers.
<b>Storage</b>	The products should be stored in cool, dry, frost-free conditions, in sealed containers. Most paint materials will apply optimally when at 15° - 20°C.
<b>Health &amp; Safety</b>	Refer to the product's Safety Data Sheet and safety advice on the product label before use. Details of flammability, for both individual items and the appropriate blends ready for application, are shown in the Table below.

Coating Type	Component	Reference	Component Flashpoint	Mixed Product Flashpoint
<b>Etch Primer</b> (Trimite SAP2)	Base Component	98/SAP2	Below 23°C	Below 23°C
	Acid Component	SAR2	Below 23°C	
	Thinner	SAT2	Below 23°C	
<b>Epoxy Primer (Mid-Grey)</b> (Def Stan 80-184 – Trimite AP45)	Base Component	41/AP45	23°C – 60°C	23°C – 60°C
	Curing Agent	J4501	23°C – 60°C	
	Thinner	AT46	23°C – 60°C	
<b>Epoxy Textured Undercoat</b> (Trimite D91080)	Base Component	D91080	23°C – 60°C	23°C – 60°C
	Curing Agent	J9802	23°C – 60°C	
	Thinner	AT98	23°C – 60°C	
<b>Polyurethane Near Matt Finish</b> (Trimite D00294)	Base Component	D00294	23°C – 60°C	23°C – 60°C
	Curing Agent	D00335	23°C – 60°C	
	Thinner	n/a		

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