WESSEX
RESINS+ADHESIVES

Wessex 520

(UW 47 Primer)

UNDERWATER EPOXY

Technical Data Sheet

DESCRIPTION

Wessex 520 (UW 47 primer) is a two component solvent free epoxy primer developed specifically for use with Wessex 4701 (UW 47) adhesive.

The epoxy resin Wessex 520 Part A is a white liquid and the epoxy hardener Wessex 520 Part B is a black liquid containing some inorganic filler.

MIXING

Method	Resin : Hardener
	Part A : Part B
by Weight	1 : 1
by Volume	1 : 1

Before mixing the two components stir them thoroughly and then the two components must be mixed for at least four minutes until a homogeneous mixture is obtained.

APPLICATION

Surface Preparation

The steel surface should be grit blasted to at least SA2½ standard to remove all contamination from the steel substrate and care should be taken to ensure the removal of corrosion from any rusted or pitted areas. It is recommended that the blast is undertaken using chilled iron grit to achieve a surface profile of between 50 – 75 µm. If such equipment is not available, thorough abrasion with 80 grit paper may be used. An even colouration over the whole area must be achieved and ideally the grit blasted area should be 300 mm greater all round than the area to be bonded. On completion of grit blasting the steel substrate should be cleaned of any dust and debris using vacuum cleaners and brushes as appropriate. Immediately prior to application of the primer the steel substrate must be vacuumed again using a clean nozzle to ensure the surface is not contaminated.

APPLICATION ENVIRONMENT

Wessex 520 primer can be applied over a wide temperature range. However, below 10°C its increased viscosity makes application physically difficult and it takes longer to cure. Above 30°C, the shorter gelation time, particularly of larger batches, provides a working period which may be too short for most practical purposes. Therefore, the recommended optimum application temperature range is 12°C to 25°C.

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Wessex Resins & Adhesives, Cupernham House, Cupernham Lane, Romsey, Hampshire, SO51 7LF, UK
wessex-resins.com +44(0)1794 521111

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Unprotected, abrasively cleaned steel will rust very quickly in conditions of high relative humidity (RH). In addition, if the steel temperature is close to the dewpoint, free water in the form of condensation can cause even more corrosion. This corroded surface constitutes a weak bonding layer and if the primer is applied to this substrate both the bond strength and durability of the epoxy may be impaired. To obtain optimum bond strength values, Wessex 520 primer must be applied to a clean, dry surface. In practice, this requires an environment where the RH is not more than 70% and the steel surface is at least 3°C above the dewpoint. It is further recommended that the steel temperature should not exceed 25°C during the application of the primer. These conditions apply until the primer has been applied and is cured (a minimum of 4 hours).

APPLICATION AND COVERAGE RATES

The primer can be applied to the metal substrate, within 4 hours of grit blasting, using either a suitable brush or roller. The area covered by a mixed quantity of Wessex 520 epoxy primer is difficult to assess accurately because it is dependent upon the temperature of the environment and the temperature of the substrate. Clearly, if the metal surface is under cover and cold then the thickness of application will be much greater than when the substrate is in direct sunlight. At operating temperatures between 15°C and 25°C and with the metallic substrate under cover, it is estimated that the coverage rate of Wessex 520 is approximately 4 m²/kg. A coating thickness of approximately 0.25 mm is achieved with this spread rate.

WORKING/GELATION TIME

After mixing the two components together and applying a coating to steel, the touch dry time at 25°C is 3 - 3½ hours.

Because of the exothermic reaction of the primer when the two epoxide components are mixed together, it is inadvisable to prepare batch sizes in excess of 2 kg (1 kg Wessex 520 epoxide resin; 1 kg Wessex 520 epoxide hardener). Larger batches of the Wessex 520 primer will cause premature gelation and it may be impossible to apply the material effectively.

The working life of a 500 g mass at room temperature (20°C) is approximately 60 minutes. The useable life can be extended by immediately dispensing the mixed material into smaller batches.

SUBSEQUENT APPLICATION OF WESSEX 4701 (UW 47 ADHESIVE)

Primed surfaces which are not to be tiled immediately should be protected from contamination and the effects of ultra-violet.

All steel surfaces which have been primed for longer than 24 hours but less than 28 days should be prepared as follows: The surfaces must be wiped with clean absorbent paper to remove dust and dry contaminants. This is to be followed by lightly abrading with a fine grade abrasive no coarser than 80 grit (i.e. 3M P120 or P80 grades are ideal). Care must be taken to ensure that the primer coat is not breached exposing the steel substrate. Should this occur the steel surface should be re-touched with primer immediately. It is important that all arisings are removed from the surface a using clean dry brush and clean vacuum nozzle prior to the application of adhesive. The adhesive should be applied within 4 hours of abrading the primer.