Technical Datasheet

WARTON METALS LIMITED

Total Clean

Total Clean 500 Concentrate

Supplied By:

Warton Metals Ltd
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Description

Total Clean 500 Concentrate is a CFC free cleaning solution designed for use in ultrasonic cleaning or spray and immersion systems. Total Clean 500 is ideal for removing a wide range of saponifiable and water soluble fluxes from PCBs, leaving bright, shiny solder joints.

Total Clean 500 contains a careful blend of solvents and emulsifiers which are 100% Ozone friendly. Total Clean 500 has a biodegradable solvent blend - designed to clean PCB flux residues to military cleanliness standards. It is recommended that Total Clean 500 is used as a 5-10% solution in water. The blend of solvents that make up Total Clean 500 dissolve all types of organic residues (including flux and grease) and inorganic material, quickly and efficiently. Its modified surface tension ensures that all areas of the board are cleaned, including underneath surface mounted components and connectors down to 40 micron stand off. Total Clean 500 is equipped with an indicator system that warns the user when the cleaning solution is exhausted -this eliminates titration checks. The colour change is from pale blue to pale yellow .

Physical Properties

Boiling Point.....>100ºC
Freezing Point.....-5ºC
Specific Gravity.....1.5 g/cm³
Flashpoint.....>100°C

Process Information

Total Clean 500 may attack some metals (such as aluminium, copper, brass etc.), if allowed to soak for more than 15 minutes, or under repeated usage.

Total Clean 500 when diluted, is designed to be used in three and four stage machines consisting of:- Ultrasonic wash or spray under immersion in Total Clean 500, Rinse (Tap Water), Rinse (De-ionised) if required and Hot Air Dry. A diluted version of Total Clean 500, named Total Clean 505 is available ready for use. Call customer services for more information.

Ultrasonic Wash

Total Clean 500 diluted in the first tank removes organic residues (grease, flux etc.) and ionic material and prevents redeposition of dirt on the PCB. Total Clean 500 is designed to clean underneath Surface Mount Devices (SMDs) and thus shortens the cleaning time to approximately 3 minutes (with Ultrasonic agitation).

Total Clean 500 absorbs very high levels of flux residues before cleaning efficiency decreases. 1 litre of Total Clean 500 Concentrate will remove 1.6 Kg of rosin.

The first stage, although ideally ultrasonic, could use any form of agitation provided it does not damage the PCB or create overfoaming. Total Clean 500 is designed to work efficiently at 55ºC to 60°C. An existing CFC based tank can often be used for this stage.

During use, the diluted Total Clean 500 becomes increasingly exhausted and its pH falls to 5.6 and below. The colour of the solution changes from pale blue to pale yellow. At this stage, replenishment with Total Clean Concentrate will restore the solutions pH.

Alternatively, freshly diluted Total Clean 500 can replace the exhausted one.

Tapwater Rinse

The second stage consists of a rinse in tap water preferably with sonic agitation. The temperature of the rinsing solution should be ambient.
Everytime a PCB is removed from the cleaning tank, some Total Clean 500 is carried over into the rinse water. To prevent the rinse water becoming increasingly more contaminated, the rinse water should either be allowed to overflow to drains or be recycled through a carbon filter. If allowed to go to a drain, your local water authority should be consulted to ensure that the level of contaminated water being put to drain is within their guidelines.

De-ionised Rinse

The third stage is a de-ionised water rinse. This removes any contamination present in the tap water from the PCB and gives a final polish to ensure exceptional cleanliness. This stage may either consist of a re-circulating rinse or a spray system that is activated when the PCB's leave the tap water rinse. If MIL STD cleanliness is not required, this de-ionised rinse may not be necessary, though the PCBs may show some white streaking due to tap water impurities.

Drying

The final stage is drying. This is enhanced by equipment that uses high air flow as opposed to heat only systems. In general, this stage takes approximately 5 minutes at 90ºC. The length of time required to dry the PCB depends on the circuit design and the efficiency of the drying unit itself. Air knives can be used as an optional extra to reduce temperature or total energy required.

Usage Losses By Drag - Out

PCB's leaving the cleaning stage carry the diluted Total Clean solution into the rinse tank. Replenishment is required to maintain the same volume of cleaning solution.

Typical figures for drag out are as follows:-
PCB Drag-out (Without Air Knife) - 100ml/m
PCB Drag-out (With Air Knife) - 20-50ml/m

Waste Removal

Total clean 500 should be disposed of at your local sewage farm, with local authority permission.

Packaging

Total Clean 500 is available in 10 litre, 25 litre and 205 litre containers.

Further Information

For further information on Total Clean 500, please do not hesitate to contact Sales & Technical Enquiries on 01706 218888.

Material Health & Safety Datasheet

WARTON METALS LIMITED

Section 1. Identification of the substance / preparation and of the company / undertaking	
Product Name:	Total Clean 500 Concentrate
Supplied By:	Warton Metals Limited Grove Mill, Commerce Street. Haslingden. Lancashire. BB4 5JT. ENGLAND.
Emergency Telephone:	+44 (0)1706 218888
Emergency Fax:	+44 (0)1706 221188

Section 2. Composition / Information on Ingredients

Ingredient	CAS No:	Nature of Hazard	%W.W Range	EEC No.	R Phrases
2-Aminoethanol (MELA)	141-43-5	* Xn	30	205-483-3	20, 36/37/38
Solvent Non hazardous constituents	-	-	70		

*Xn - The level of 2-aminoethanol present in this product is below the concentration limit at which it's presence is considered to give the product irritant or harmful properties.

Section 3. Hazards Identification	
Classification (CHIP)	Non Hazardous
Main Health Hazards	Prolonged exposure in confined spaces may cause headaches and slight eye irritation. Has degreasing action on the skin which may cause irritation on prolonged exposure and increase the risk of dermatitis from other chemicals. May cause slight skin irritation if splashed in the eyes.

Section 4. First Aid Measures	
Inhalation:	Move casualty to fresh air and treat symptomatically.
Skin Contact:	Wash off with soap and water. Skin conditioning cream should also be used to prevent any dryness.
Eye Contact:	Immediately flush with water for 10 minutes. If irritation occurs and persists seek medical attention.
Ingestion:	Give plenty of water to drink. If large quantities have been swallowed seek medical attention.

Section 5. Fire Fighting Measures	
Flammability:	Product is non flammable , but is combustible.
Special Fire Fighting Procedures:	CO, CO2 and nitric oxide may be produced.
Extinguisher media:	Foam, dry, chemical, CO2, water fog.
Measures:	Breathing apparatus should be worn if large quantities are involved in fire.

Section 6. Accidental Release Measures	
	Mop up with absorbent material and transfer to suitable disposable container. Small quantities may be flushed to drain with plenty of water.

Section 7. Handling & Storage	
Handling:	In accordance with good industrial hygiene practises, do not eat, drink or smoke when handling this material. Avoid contact with skin and eyes.
Fire Prevention:	No special precautions required.
Storage:	No special storage conditions required but this product will be adversely affected by frost.

Section 8. Exposure Controls & Personal Protection

Occupational Exposure Limits:-

OEL: Substances Listed	Long term (8 hour)		Short term (15 min)		skin
in EH40/94	ppm	mg/m3	ppm	mg/m3	
2-Aminoethanol	* 3	8	6	15	

Respiratory Protection:	Normal good room ventilation should be efficient.
Eyes and skin Protection:	Gloves and eye protection are recommended as for chemical handling.

Section 9. Physical & Chemical Properties.

Appearance / colour:	Dark blue liquid	Viscosity (25°C):	-
Odour:	Ammoniacal	Form / colour:	N/D
Density:	1.5	Boiling Point Range:	>100°C
Flash point:	>190°C	Auto Ignition Temperature:	N/D
Solubility in water:	Miscible	Vapour Pressure:	<1 mmHg/20°C MELA
PH:	11-13	Explosive Limits:	N/D

Section 10. Stability & Reactivity	
Stability	Stable. May be incompatible with strong acids and oxidising agents.
Decomposition Products:	Will not decompose under normal conditions and at ambient temperatures.
Materials/conditions to avoid	Oxidising agents or strong acids.

Section 11. Toxicological Information (toxic effects arising from exposure based on experimental and non experimental data)

LD50 oral, rat 1.7 to 2.7 g/kg, skin, rabbit 1g/kg	2 aminoethanol

Section 12. Ecological Information	
	All materials used in this product are >99% biodegradable. Expected to be non-toxic to fish.

Section 13. Disposal Considerations	
	In accordance with local regulations via licensed contractor. Small quantities may be flushed to drain with plenty of water. Contact local water authority before large quantities are to be flushed into drains or sewers.

Section 14. Transport Information	
ADR/RID Class Item: IMO Class:	- - Not a dangerous material and not subject to any transport or labelling regulations.

Section 15. Regulatory Information	
Classification symbol Governing Directive: Nature of special risk: Safety advise:	- - - Contains no materials listed as toxic under EPA/SARA-313.

Section 16. Other Information	
Recommended uses and restrictions: Publications references:	It is the responsibility to ensure safe working within the workplace remains with the user. The health hazard and general information contained within this material safety datasheet are given as a guide to the precautions required to maintain a safe working environment.

Section 17. Revision Dates	
Revised Date / Initials: Replacing: Legend:	August 1999 VHM All previous health and safety datasheets N/A = Not applicable or available at time of printing. N/D = Not determined or not determinable. Est. = Estimated
The information and recommendations on this sheet relate to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. The information is given in good faith and the best of Warton Metals Ltd knowledge, information and believed accurate and reliable at the time of preparation. Nothing herein is to be construed as a guarantee, express or implied in all cases it is the responsibility of the user to determine the applicability of this information or the suitability of the products for his own particular purposes.	