MATERIAL APPLICATION & SAFETY DATASHEET

NO CLEAN LOW RESIDUE

Product Name:

Future 315 Low Residue No Clean Flux

Manufactured By:

Warton Metals Ltd.
Grove Mill Commerce Street Haslingden
Lancashire BB4 5JT
ENGLAND

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Description

Future 315 Low Residue No Clean, Flux is a 2% solids colophony free and halide free flux suitable for most no clean professional soldering applications. Future not only improves soldering performance (no bridges or icicles) but also reduces costs as cleaning is not necessary. Future 315 Low Residue No Clean Flux offers excellent solderability with the minimal level of flux residue. Future 315 Low Residue No Clean is suitable for spray or foam fluxing systems.

Physical Properties

Solids content.....:2%.
Specific gravity at 20°C.....:0.805±0.05
Halide content.....:zero.
Colophony content.....:zero.
Volatiles.....:98%.

Typical Uses

Future 315 Low Residue No Clean Flux is suitable for conventional, mixed and surface mount technologies. For telecommunications, computer and general consumer electronics.

Application and Maintenance

Before Use. Read all material safety information. Flux previously used must be thoroughly cleaned out of the system - as small amounts can upset the performance of **Warton Future**. Carriers, pallets and fingers must be cleaned.
Foam Fluxing Systems. At night and at weekends the flux should be removed from the machine and stored in a closed container. The air stone should be left soaking in **Warton Thinners 2000** and changed before the quality of foam deteriorates. It is advisable to use a new stone when replacing rosin type fluxes. A programme for the regular replacement of the flux should be established to prevent the accumulation of contamination within the flux. The recommended
run-time of a low solids flux is 40 hours.

Flux Control. Specific Gravity of **Future 315** is 0.805±0.05.
Spray Systems. Future 315 is suitable and enhanced by the use of a total loss spray system.

Air Knives (foaming systems). The air knife should be angled 5-12° away from the foam wave, removing excess flux without destroying the foam head. **(spray systems).** Ideally an air knife should be fitted even when using a spray system thus preventing insufficient capillary action when soldering. Spray system air knives are normally angled slightly towards the system. Excessive white deposits on the top side of the board are usually due to excess flux application. This can be reduced by the air knife angle, air volume and pressure.

Track Speed. The ideal track speed depends on the preheats, the type of board. A speed of between 1.2 - 1.8 metres per minute will suit most applications.

Preheat. A topside temperature of between 80°C and 110 °C is recommended.

Solder Temperature. A solder temperature between 230°C and 250°C can be used.

Wave Height. The correct set up is achieved by balancing the pot height, pump speed and the back of the wave former. They should give the depth of the wave required and the flow. Adjustment of the back plate may be difficult to adjust on a poorly maintained bath. Care must be taken to ensure the back plate is level when the adjustment is completed.

Thinners

Warton Metals Ltd recommend **Thinners 2000** should be used with **Future 315** to ensure optimum performance and consistency.

Packaging

Warton Future 315 and **Warton Thinners 1000** are supplied in 10 litre and 25 litre containers and flux pens.

Future 315 Low Residue No Clean Flux

Section 1. Identification of the substance / preparation and of the company / undertaking	
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Manufactured By:	Warton Metals Limited Grove Mill, Commerce Street. Haslingden. Lancashire. BB4 5JT. ENGLAND.
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Section 2. Composition / Information on Ingredients	
Isopropyl Alcohol (IPA)	CAS No: 67-63-0 EINECS No: 200-661-7 Propan-2-OL(Isopropyl Alcohol) R 36 - Irritating To Eyes EEC Symbol - Xi Weight 99%.
Activators & inhibitors	<10%.

Section 3. Hazards Identification	
Health Hazards	Irritating To Eyes, May cause lung damage if swallowed.
Physical & Chemical / Fire & Explosion Hazards:	Extreme hazard. Leaks of gas or spills of liquid can readily form flammable mixtures at temperatures at or above the flash point.

Section 4. First Aid Measures	
Inhalation:	Using approved respiratory protection, immediately remove the affected victim from exposure. Administer artificial respiration if breathing is stopped. Keep at rest. Call for prompt medical attention.
Skin Contact:	Flush with large amounts of water: use soap if available. Remove grossly contaminated clothing, including shoes and launder before reuse.
Eye Contact:	Immediately flush eyes with large amounts of water for at least 15 minutes. Get prompt medical attention.
Ingestion:	If swallowed, DO NOT induce vomiting. Keep at rest. Get prompt medical attention.

Section 5. Fire Fighting Measures	
Suitable extinguishing media:	Use water spray to cool fire exposed surfaces and to protect personnel. Shut off "fuel" to fire. If a leak or spill has not ignited, use water spray to disperse the vapours and to protect men attempting to stop a leak. Either allow fire to burn under controlled conditions or extinguish with alcohol type foam or dry chemical. Try to cover liquid spills with foam.
Protective measures:	See section 4 "First Aid Measures" and section 10 "Stability and Reactivity".

Section 6. Accidental Release Measures	
Personal precautions: Environmental precautions: Methods of clearing up:	Eliminate sources of ignition. Warn occupants of downwind areas of fire and explosion hazard. Prevent liquid from entering sewers, watercourses, or low areas. Keep public away. Shut off source if possible to do so without hazard. Advise police if substance has entered a watercourse or sewer Or has contaminated soil or vegetation. Take measures to minimise the effect on the ground water. Contain spilled liquid with sand or earth. Dilute contained spill with water. Recover by pumping (use an explosion proof or hand pump) or with a suitable absorbent. If liquid is too viscous for pumping, scrape up with shovels or pails and place in suitable containers for recycle or disposal. Consult an expert on disposal of recovered material and ensure conformity to local disposal regulations. See section 4 " First Aid Measures" and section 10 "Stability and Reactivity".

Section 7. Handling & Storage	
Storage / Transport Temperature °C:	Ambient
Loading/Unloading Temperature (°C):	Ambient
Viscosity (ost):	2.65
Storage Transport Pressure (Kpa):	Atmospheric
Electrostatic Accumulation Hazard:	Yes, Use proper grounding procedure.
Usual Shipping Containers:	Tank cars, tank wagons, barges or drums.
Storage, Handling and General Notes:	Keep container closed. Handle and open containers with care. Store in a cool, well ventilated place away from incompatible materials. DO NOT store or handle near an open flame, sources of heat, or sources of ignition. Protect material from direct sunlight. Material will accumulate static charges which may cause an electrical spark (ignition source). Use proper grounding procedures. Empty product containers may contain product residue. DO NOT reuse containers without commercial cleaning or reconditioning.

Section 8. Exposure Controls & Personal Protection	
Workplace Exposure Limits:	The use of mechanical dilution ventilation is recommended whenever this product is used in a confined space, is heated above the ambient temperatures or otherwise to maintain ambient concentration below recommended threshold exposure limits.
Threshold Limit Value (TLV):	The ACGIH recommends a TWA of 400 ppm (980 mg/m³), and a STEL of 500 ppm (1225 mg/m³) for Isopropyl Alcohol.
Personal Protection: Respiratory Protection:	For open systems where contact is likely:- Use NIOSH/MSHA approved organic vapour cartridge half mask respirator for excessive concentration up to 10 times the exposure limits. Wear long sleeves, chemical resistant gloves and chemical goggles. Where contact may occur, wear safety glasses with side shields. A neoprene apron should be worn where the potential for splashing exists.

Section 8. Exposure Controls & Personal Protection	
Ventilation To Be Used:	Local exhaust, maintain exposure below PEL/TLV's. Where concentrations in air may exceed the limits given in this section, and engineering, work practise or other means of exposure reduction are not adequate, approved respirators may be necessary to prevent over exposure by inhalation.

Section 9. Physical & Chemical Properties.			
Physical State: Form/Colour:	Liquid Clear, Colourless	Explosive Limits (in air):	1.8-12.0 VOL%
Odour:	Alcohol Odour	Vapour Density (1013	Approximately
pH (°C):	-85.00°°C	Kpa/air+1):	>1.00kpa
Freeze / Melt Point:	82-83ºC	Solubility In Water (20°C):	<99 wt%
Flashpoint (TCC):	<19ºC	Evaporation Rate (n-Bu	2.500
Auto-ignition Temperature:	>350ºC	Acetate=1):	

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Section 10. Stability & Reactivity	
Hazardous Polymerisation?: Conditions To Avoid	No
Polymerisation:	Not applicable
Stability:	Stable
Conditions To Avoid Instability:	Not applicable
Materials & Conditions To Avoid (incompatibility):	Strong oxidising agents.
Hazardous Decomposition Products:	None

Section 11. Toxicological Information (toxic effects arising from exposure based on experimental and non experimental data)	
Inhalation:	Vapour concentration above recommended exposure levels are irritating to eyes and the respiratory tract, may cause dizziness, are anaesthetic and may have other central nervous system effects.
Skin contact:	Low order of toxicity. Frequent or prolonged contact may irritate and cause dermatitis.
Eye Contact:	Irritating, and will injure eye tissue if not removed promptly.
Ingestion:	Small amounts of liquid aspirated into the respiratory system during ingestion or from vomiting may cause bronchopneumonia or pulmonary edema. Minimal toxicity.

Section 12. Ecological Information	
Possible environmental effects	Not relevant

Section 13. Disposal Considerations	
(Safe disposal of product, its residues and packaging materials):	The following advice only applies to the product as supplied. Empty drums should be taken for recycling, recovery or disposal through a suitably qualified or licensed contractor. care should in any case be taken to ensure compliance with EC, national and local regulations. This product is NOT suitable for disposal by either landfill or via municipal sewers, drains, natural streams or rivers.

Section 14. Transport Information			
Item:	Land (railway, road, such as RID/ADR) ADR/RID Class, 3, 3b	EMS Number MFAG: Marine Pollutant	3-06 305**:** No

Empty Containers	: 3,41	Risk Label:	3
Danger Number	33	Packaging	Group:II
Danger Label:	3**:**	IMDG Code Page	3244
Max. KG Exempt	333	Proper Shipping Name:	Isopropanol(Isopropyl Alcohol).
Substance ID Number:	1219	*AIR* (ICAO/IATA) Class:	3
Transport Document Name:	Isopropanol (Isopropyl alcohol).	Passenger Packing Instruction	305/Y305
		Passenger Max.Quantity pack	5L/1L
SEA (IMDG) UN Number:	1219	Pack:Cargo Packing Instruction:	307
IMO Class:	3.2**:**	Cargo Max. Quantity/Pack:	60L

Section 15. Regulatory Information	
Labelling Information	Dangerous Substances Directive 67/548/EEC, as modified.
Indication of danger:	HIGHLY FLAMMABLE / F  / IRRITANT / Xi 
Contains:	Label Name: Propan-2-OL (Isopropyl Alcohol).
Risk phrases:	R11 - Highly Flammable R36 - Irritating to Eyes
Safety phrases:	SO7 - Keep Container Tightly Closed. S16 - Keep away from sources of ignition - NO SMOKING.
	S25 - Avoid Contact with eyes. S43B - In case of fire use sand, earth, chemical powder or alcohol type foam.

Section 16. Other Information	
Recommended uses and restrictions:	The information on IPA eye irritancy has been communicated in 1990 to Competent Authorities in the European Union together with a proposal to change the classification of this substance to: Xi (Irritant), R36 (Irritating to eyes).
Publications references:	The classification of IPA as shown on the labels is in concurrence with our proposal.

Section 17. Revision Dates	
Revised Date / Initials/Replacing:	August 1999 / VHM . All previous health and safety datasheets
Legend:	N/A = Not applicable or available at time of printing. N/D = Not determined or not determinable. Est. = Estimated