Technical data sheet

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Manufacturer:	3M DEUTSCHLAND GMBH
Product group:	KLEBSTOFF
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SCOTCH-WELD™ 2214 HT/NF

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Scotch-Weld™ Epoxy Adhesive 2214 Hi-Temp New Formula

Product Data Sheet

Date: September 2022
Supersedes: November 2019

Product Description

3M™ Scotch-Weld™ Adhesive 2214 HT/NF is an aluminium filled, deaerated product for use where higher strengths are required.

Key Features

- May be applied by spatula, trowel, or flow equipment to meet your individual project requirements.
- Designed for use in applications where high strength bonds are needed

Typical Uncured Physical Properties

Base	Modified Epoxy
Colour	uncured: grey cured: grey brown
Density	1.65 g/ml
Specific Gravity acc. to ISO 2811 @ 28 °C ±2 °C	1.6
PressFlow Viscosity @ 26 °C ±2 °C	138 s
Viscosity @ 23 °C	>=800,000 mPa-s
Rheometer Viscosity acc. to EN 6043	683 Pa.s

Performance Characteristics

Overlap Shear Strength acc. to ISO 4587 @ 23 °C ± 2 °C	22 MPa
Overlap Shear Strength acc. to ISO 4587 @ 121 °C ±2 °C	19 MPa
Overlap Shear Strength acc. to ISO 4587 @ 171 °C ± 2 °C	14 MPa
Slump Resistance* @ 121 °C ±-2 °C	0.4 mm

(*) A bead of 1/16'' thickness and 25,4 mm width applied on an aluminium substrate which is then placed vertically. The slump resistance is measured by the increase of the bead width

Application Ideas	• High temperature aluminium bonding
Handling/ Curing Information	Directions for Use CAUTION: Use caution if your bond line is thicker than 1 mm as an exothermic reaction may occur during cure with production of intense heat and smoke. The likelihood of this happening depends on your joint design, the mass of material cured, and the ability for heat to be dissipated by the substrates. 1. Warm products to room temperature before opening containers to restore proper application consistency and to prevent moisture condensation on adhesive surface. Containers may be stored at room temperature for 1-2 days to thaw. Do not warm at temperatures above 27 °C 2. For high strength structural bonds, paint, oxide films, oils, dust, mould release agents and all other surface contaminants must be completely removed. However, the amount of surface preparation directly depends on the substrates, the required bond strength, environmental aging resistance, and requirements determined by the user in light of the user's particular purpose and method of application. For specific surface preparations on common substrates, see the section on surface preparation. 3. Wear protective gloves and face protection to prevent skin and eyes contact and do not use solvents for cleaning hands. 4. For maximum bond strength, apply product evenly to both surfaces to be joined. 5. Keep parts from moving during cure as contact pressure is necessary. 6. Clean-up can be accomplished with solvent such as 3M™ Scotch-Grip™ Solvent No. 3 or Methyl Ethyl Ketone* *Note: Prior to use of these solvents, extinguish or eliminate any ignition sources and read and follow supplier's environmental, health, and safety recommendations listed on the MSDS and product label

Surface Preparation

The following cleaning methods are suggested for common surfaces:

Steel:
1. Wipe free of dust with oil-free solvent such as Methyl Ethyl Ketone*
2. Sandblast or abrade using clean fine grit abrasives.
3. Wipe again with solvent to remove loose particles.

Aluminium:
1. Vapor Degrease – Perchloroethylene* condensing vapours for 5-10 minutes.
2. Alkaline Degrease – Oakite 164 solution (70-90 ml/L water) at 87 °C ± 5 °C for 10-20 minutes. Rinse immediately in large quantities of cold running water.
3. Acid (FPL) Etch – Place panels in their following solution for 10 minutes at 66 °C ± 2 °C
Sodium Dichromate 32-38 ml/L
Sulfuric Acid, 66°Be 300-320 ml/L
2024-T3 aluminium (dissolved) 1.6 ml/L minimum tap water as needed to balance
4. Rinse – Rinse panels in clear running tap water.
5. Dry – Air dry 15 minutes; force dry 10 minutes at 66 °C ± 5 °C
6. If primer is to be used, it should be applied within 4 hours after surface preparation.

Plastics:
1. Solvent wipe with Isopropyl Alcohol*
2. Abrade using clean fine grit abrasives.
3. Solvent wipe with Isopropyl Alcohol*

Rubbers:
1. Solvent wipe with Methyl Ethyl Ketone*
2. Abrade using clean fine grit abrasives.
3. Solvent wipe with Methyl Ethyl Ketone*
Glass:
1. Solvent wipe with acetone or Methyl Ethyl Ketone*

Note: For glass applications which will be subjected to high moisture/humidity conditions, 3M™ Scotch-Weld™ Primer EC-3901 should be used to prime the glass.

*Note: Prior to use of these solvents, extinguish or eliminate any ignition sources and read and follow supplier's environmental, health, and safety recommendations listed on the MSDS and product label

Storage & Shelf Life	The product can be stored up to 12 months @ 4 °C or 18 months @ -20 °C after production. Store products at 4 °C or below for maximum storage life. Higher temperatures reduce normal storage life. Rotate stock on a “first-in-first-out” basis. CAUTION: Products are heat sensitive. Storage above 54 °C may cause an exothermic reaction resulting in evolution of excessive heat, noxious fumes and possibly fire. Dispose of contents/container in accordance with applicable local/regional/national/international regulations
Precautionary Information	Refer to product label and Material Safety Data Sheet for health and safety information before using the product. For information please contact your local 3M Office. www.3M.com
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