Technical data sheet

Product:	DP8805NS
Manufacturer:	3M DEUTSCHLAND GMBH
Product group:	KLEBSTOFF
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3M™ SCOTCH-WELD™ DP8805NS

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Scotch-Weld™ Low Odour
Acrylic Adhesive DP8805NS Green

Product Data Sheet

Date: September 2022
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Product Description

3M™ Scotch-Weld™ Low Odour Acrylic Adhesives are high performance, two-part acrylic adhesives with lower odour than most acrylic adhesives. These toughened products feature improved shear, peel and impact performance. These durable products feature a fast rate of strength build, providing structural strength in minutes.

Key Features

- Adhesion to many plastics and metal
- Toughened
- Work life of approximately 4 minutes
- Good shear strength
- Structural strength in about 10 minutes
- High peel strength
- 10:1 mix ratio
- Increased cure speed with applied heat
- Contain glass beads (250µ diameter) to control bond line thickness

Note:
Unless otherwise indicated, all properties measured at 22 °C.

Physical Properties

Property	DP8805NS Green	
Colour	Base (B) Accelerator (A)	Off-white Blue
Viscosity[1]	Base (B) Accelerator (A)	45000 mPas 15000 mPas
Density[2]	Base (B) Accelerator (A)	1,06 g/cm^3 1,08 g/cm^3
Mix ratio	By volume By weight	10 Parts B : 1 Part A 10 Parts B : 1 Part A
Note: Cure speed times are approximate and depend on adhesive temperature.		
Work life[3]		3-5 min
Open time[4]		4-6 min
Time to handling strength[5]		6-8 min
Time to structural strength[6]		8-10 min
Full cure time		24 hours

1. Viscosity measured using parallel plate viscometer; reported viscosity at 4 sec^{-1} shear rate.
2. Density measured using pycnometer.
3. Maximum time that adhesive can remain in a static mixing nozzle and still be expelled without undue force on the applicator.
4. Maximum time allowed after applying adhesive to one substrate before bond must be closed and fixed in place.
5. Minimum time required to achieve 0,35 MPa of overlap shear strength.
6. Minimum time required to achieve 6,9 MPa of overlap shear strength.

Typical Mixed Physical Properties

Property	DP8805NS Green
Colour	Blue-Green
Full cure time	24 hours
Viscosity	45000 mPAs
Density	1,06 g/cm^3

Typical Cured Physical Properties

Overlap Shear (MPa)[7]

Substrate	DP8805NS Green
Aluminium	27,0 CF
Stainless steel	24,4 CF
PVC	13,6 SF
ABS	8,5 SF
Acrylic	7,3 SF
Polycarbonate	5,4 AF
Polystyrene	2,7 AF
Polyester (fiber-reinforced)	4,4 AF
Epoxy resin (fiber-reinforced)	22,7 CF
Aluminium (tested at 82°C)	6,1 CF

7. Overlap shear values measured using ASTM D1002; 1 min open time; adhesive allowed to cure for 24 hours at room temperature; 1/2" overlap; 0.010" bond line thickness; samples pulled at 0.1 in/min for metals and 2 in/min for plastics; all surfaces prepared with light abrasion and solvent clean; substrates used were 1/16" thick metals and 1/8" thick plastics; failure modes:

AF: adhesive failure CF: cohesive failure SF: substrate failure

Note: Environmental aging tests have shown that these adhesives may accelerate the corrosion of certain metals (such as bare steel, copper, brass, and bronze), leading to low bond strength values and early bond failure. These adhesives also have relatively low adhesion to low surface energy plastics (such as polypropylene, polyethylene, TPO, and PTFE). Applications involving any of these materials should be carefully evaluated by the end user for suitability.

Mechanical Properties[8]

Substrate	DP8805NS Green
Tensile modulus (GPa)	0,97
Tensile strength (MPa)	12,5
Tensile strain at break (%)	8,5

8. Tensile properties measured using ASTM D638; adhesives allowed to cure for 2 weeks at room temperature; 1/8" thick Type I test specimens; samples pulled at 0.2 in/min.

Floating Roller Peel (N/mm width)[9]

Substrate	DP8805NS Green
Aluminium	4,7 CF

9. Floating roller peel values measured using ASTM D3167; adhesives allowed to cure for 24 hours at room temperature; 1" wide samples; 0.017" bond line thickness; samples pulled at 6 in/min; aluminium surfaces etched; substrates used were 1/16" thick and 0.020" thick aluminium; failure modes:

AF: adhesive failure CF: cohesive failure SF: substrate failure

Note: The data in this sheet were generated using the 3M™ EPX™ Applicator System equipped with an EPX static mixer, according to manufacturer's directions. Thorough hand-mixing will afford comparable results.

Environmental Resistance[10]

Condition	Substrate	DP8805NS Green
150 °C	Aluminium	100 %
50 °C + 80 % relative humidity		60 %
85 °C + 85 % relative humidity		50 %
Water		70 %
Salt water (5 w t% in water)		70 %
Diesel fuel		100 %
Motor oil		100 %
Antifreeze (50 wt % in water)		85 %
Isopropyl alcohol		50 %
Bleach (10 wt% in water)		60 %
50 °C + 80 % relative humidity	PVC	100 %
Water		100 %
Salt water (5 wt % in water)		100 %
Sulphuric acid (16 wt % in water)		100 %
Sodium hydroxide (10 wt % in water)		90 %

10. Values indicate overlap shear test performance retained after 1,000 hours of continuous exposure relative to a control sample left at room temperature; samples conditioned for 24 hours at room temperature and 50% relative humidity prior to tests; “NT” = not tested yet.

Note: Fully-cured Low Odour Acrylic Adhesives can withstand short-term incidental contact with almost any solvent, chemical, or environmental condition. However, long-term continuous exposure to the following liquids should be avoided:

1. Elevated temperature (>37°C) water

2. Ketone-type solvents (acetone, MEK)

3. Gasoline and similar liquids

Directions For Use

1. To obtain the highest strength structural bonds, paint, oxide films, oils, dust, mould release agents, and all other surface contaminants must be completely removed. The amount of surface preparation depends on the required bond strength and environmental aging resistance desired by user. For suggested surface preparations on common substrates, see the section on surface preparation.

2. Mixing

For Duo-Pak Cartridges

Store cartridges with cap end up allowing any air bubbles to rise towards the tip. To use, simply insert the cartridge into the EPX applicator and start the plunger into the cylinders using light pressure on the trigger. Then remove the cap and expel a small amount of adhesive to ensure material flows freely from both sides of cartridge. For automatic mixing, attach an EPX mixing nozzle to the cartridge and begin dispensing the adhesive. For hand mixing, expel the desired amount of adhesive and mix thoroughly. Mix approximately 15 seconds after obtaining a uniform colour.

For Bulk Containers

Mix thoroughly by weight or volume in the proportion specified on the product label or in the typical uncured properties section. Mix approximately 15 seconds after obtaining a uniform colour.

3. Apply adhesive and join surfaces within the open time listed for the specific product.
Larger quantities and/or higher temperatures will reduce this working time.

4. Allow adhesive to cure at 16 °C or above until completely firm. Applying heat up to 66 °C will increase cure speed.

5. Keep parts from moving during cure. Apply contact pressure or fixture in place if necessary. Optimum bond line thickness ranges from 0.005 to 0.020 inch; shear strength will be maximized with thinner bond lines, while peel strength reaches a maximum with thicker bond lines.

6. Excess uncured adhesive can be cleaned up with ketone type solvents.*****

***Note: When using solvents, extinguish all ignition sources, including pilot lights, and follow the manufacturer's precautions and directions for use.**

Surface Preparation

3M™ Scotch-Weld™ Acrylic Adhesives are designed to be used on metal, wood and most plastic surfaces. The following cleaning methods are suggested for common surfaces:

Steel:
1. Wipe free of dust and dirt with pure solvent such as acetone or isopropyl alcohol.*****
2. Sandblast or abrade using clean fine grit abrasives.
3. Wipe again with clean solvent to remove loose particles.*****
4. When using a primer, apply within 4 hours after surface preparation.

Aluminium:
1. Wipe free of dust and dirt with pure solvent such as acetone or isopropyl alcohol.*****
2. Sandblast or abrade using clean fine grit abrasives.
3. Wipe again with clean solvent to remove loose particles.*****

Plastics/Rubbers:
1. Wipe with isopropyl alcohol.*****
2. Abrade using fine grit abrasives.
3. Wipe with isopropyl alcohol.*****

Glass:
1. Solvent wipe surface using acetone or MEK.*****
2. Apply a thin coating of a silane adhesion promoter to the glass surfaces to be bonded and allow to dry completely before bonding.

***Note: When using solvents, extinguish all ignition sources, including pilot lights, and follow the manufacturer's precautions and directions for use.**

Storage & Shelf Life	Store product at 27 °C or below. Refrigeration at 4 °C will help extend shelf life. Do not freeze. Allow product to reach room temperature prior to use. The product can be stored up to 18 months after production. **Note:** The shelf life may be shortened if the original packaging is not properly sealed or stored in an environment with high temperatures or humidity.
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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