

Adhesive Technology

Adhesive flooring systems for Industry

Adhesive systems that permanently bond modern sheet materials.



nuplex[®]

Construction Products

a division of Nuplex Industries Ltd.
Chemical specialities for building and
construction

Nuplex Corporate profile

- Established 1956
- Employees 1700
- Sales NZ\$ 1500 (million) 2007
- Assets NZ\$1bn
- Business: specialist chemical manufacturer based on resin manufacturer. Nuplex is differentiated from other “flooring’ companies in that Nuplex actually manufactures the resins being used.

Nuplex Corporate profile

- Resin manufacturing plants in:
- Sydney
- Auckland
- Melbourne
- Indonesia
- China
- Vietnam
- and around the world



Nuplex Corporate profile

- Technology centres in:
- Sydney
- Auckland
- Netherlands
- and around the world



Nuplex is adhesive vertically integrated

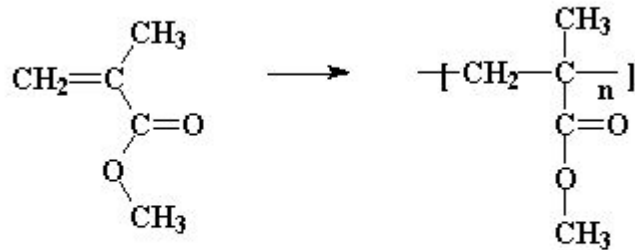
- From acrylic monomers, Nuplex manufacture resins based on these monomers; converting it to Poly-acrylic waterbased polymer emulsions



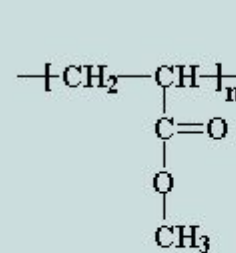
- In combination with other acrylic monomers acrylic resin can produce a wide range of hardnesses and flexibilities.

About Acrylic polymers

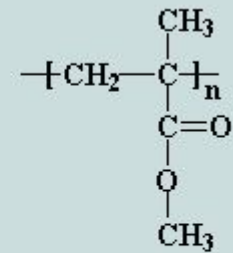
- Acrylic resins based on a variety of monomers; converting it to PMMA (polymer).



polymerization of methyl methacrylate
to get poly(methyl methacrylate)



This is poly(methyl acrylate).
It is soft and rubbery.

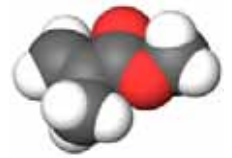


This is poly(methyl methacrylate).
It is a hard plastic.

Nuplex integrated resin Acrylic position

Other Acrylic monomers

MMA Monomer



Nuplex
Acrylic & MMA resins

Nuplex
MMA resins

Nuplex
Adhesive Industry

Hard MMA Flooring resins
Nuplex

Acrylic Polymers in the Flooring adhesive Industry



Flooring Adhesives

- Carpet
- Vinyl
- Timber
- Vinyl Tiles
- VCT tiles
- Linoleum
- Rubber tile & sheet
- Full tech bulletins on all products



Nuplex Adhesive Characteristics

- Cures rapidly
- Cures at low temperatures.
- Interior
- Easy remedial work or repair
- Rapid tack time
- Nil affect on floor covering

Two Brands: Lockfast & Truestik



Nuplex LOCKFAST adhesives in Flooring - Details

	Carpet	Vinyl	Linoleum	Rubber Sheet
Ultrabond	Yes; direct & double stick	Commercial only	yes	no
Super 7 DDS	Yes, direct only. RMA86 carpet tiles	No	No	no
Tradex 100	Yes, direct and double stick	No	Yes	Yes
Duracryl HSV and Supacryl	No	Yes	Yes	No
C8	Yes, direct	No	No	No

Nuplex TRUESTIK adhesives in Flooring - Details

	Carpet	Vinyl	Linoleum	Rubber Sheet
CA2	Yes; direct & double stick	Commercial only	yes	no
CA1	Yes, direct only	No	No	no
EA	No	Yes	yes	Yes
VA1	No	Yes	Yes	No
CTA	Yes, carpet tiles	No	No	No

Nuplex miscellaneous adhesives in Flooring - Details

	Rubber Tiles and sheet	Linoleum	Wood	VOC g/L
MK95 Polyurethane	Yes	yes	Yes	5
Red label Latex and black cement	yes	Yes	yes	1
Parquet Adhesive	limited	Yes; fully dry areas	Yes, fully dry areas	8
CB103, CS110	limited	Yes	no	600
Uzin k2000s	Yes (sheet)	yes	no	5

RapidFloor Lockfast & Truestik in Flooring - Details

	Lockfast	Truestik
Tacktime	fast	Faster; lower water content
VOC	Low	Zero
Bond Strength	High	Highest due to higher adhesive content



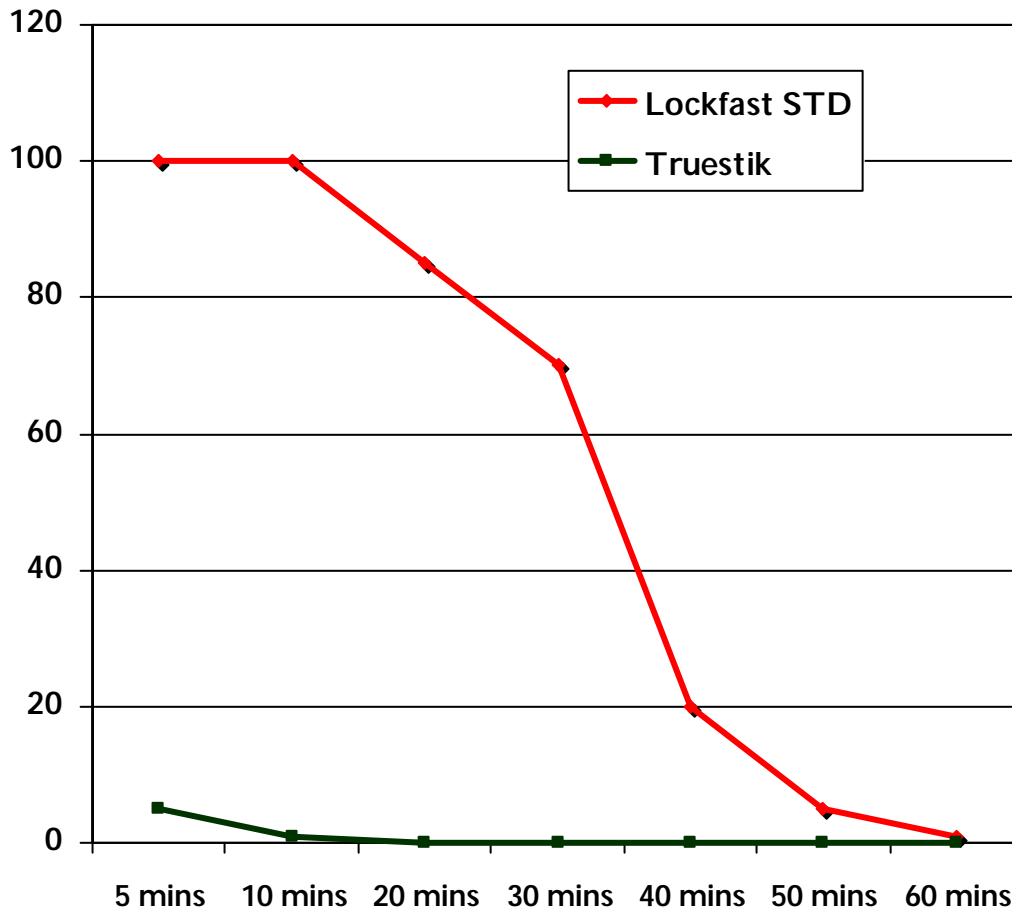
Nuplex Adhesives in Flooring - Resistance

- Nuplex adhesives are resistant to normal levels of moisture in cured concrete
- Ultrabond & Duracryl have the highest levels of heat resistance.

Nuplex Adhesives in Flooring

- Ensure forced area movement is used at all times to ensure no “dead air” areas that will inhibit cure.
- Open pails inspect prior to use.
- Ensure that a priming coat is used on overly porous substrates
- Refer to Nuplex chemical Tech data at all times

Nuplex Adhesives in Flooring - Rapid Odour reduction



Vertical scale shows
perceived odour over
time.

Truestik is virtually
imperceptible

Nuplex introduced TRUESTIK adhesives in 2009 to offer the market VOC free adhesives



Nuplex introduced **Nuplex Choice** brand to define designated VOC products



Truestik

The Nuplex environmentally friendly adhesive range



Truestik in Flooring - Rapid Odour reduction

Truestik is virtually VOC free when curing on the floor.

Nuplex Producer Statement

“Nuplex Industries Ltd, Telarc ISO 9001 accredited, states that the Truestik range has effectively zero VOC based on the known material composition (as manufactured)”.

Being NZ manufactured, from in-house resin bases, Nuplex can accurately determine and state VOC limits.



Truestik in Flooring - Rapid Odour reduction

Truestik is virtually VOC free when curing on the floor.

LEED: Leadership in Environmental and Energy design

The LEED system has been developed by the USGBC (US Green Building council). It defines points for a green star building.

LEED 2009 builds up a max of 110 points for a Platinum (80 to 110) building. (partially copied below)



LEED 2009 for New Construction and Major Renovation

Project Checklist

Project Name

Date

Sustainable Sites Possible Points: 26

Y	N	?			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Prereq 1	Construction Activity Pollution Prevention	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1	Site Selection	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 2	Development Density and Community Connectivity	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 3	Brownfield Redevelopment	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4.1	Alternative Transportation—Public Transportation Access	6
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4.2	Alternative Transportation—Bicycle Storage and Changing Room	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4.3	Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicle	3
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4.4	Alternative Transportation—Parking Capacity	2
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 5.1	Site Development—Protect or Restore Habitat	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 5.2	Site Development—Maximize Open Space	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 6.1	Stormwater Design—Quantity Control	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 6.2	Stormwater Design—Quality Control	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 7.1	Heat Island Effect—Non-roof	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 7.2	Heat Island Effect—Roof	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 8	Light Pollution Reduction	1

Water Efficiency Possible Points: 10

Materials and Resources, Continued

Y	N	?			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4	Recycled Content	1 to 2
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 5	Regional Materials	1 to 2
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 6	Rapidly Renewable Materials	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 7	Certified Wood	1

Indoor Environmental Quality Possible Points: 15

Y	N	?			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Prereq 1	Minimum Indoor Air Quality Performance	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Prereq 2	Environmental Tobacco Smoke (ETS) Control	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1	Outdoor Air Delivery Monitoring	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 2	Increased Ventilation	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 3.1	Construction IAQ Management Plan—During Construction	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 3.2	Construction IAQ Management Plan—Before Occupancy	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4.3	Low-Emitting Materials—Flooring Systems	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Product	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 5	Indoor Chemical and Pollutant Source Control	1

Regional Priority Credits Possible Points: 4

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1.1	Regional Priority: Specific Credit	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1.2	Regional Priority: Specific Credit	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1.3	Regional Priority: Specific Credit	1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Credit 1.4	Regional Priority: Specific Credit	1

Total Possible Points: 110

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110

Within LEED, low VOC adhesives contribute 1 point to Green building.

6				Indoor Environmental Quality	Possible Points: 15
1					
3					
2	Y			Prereq 1 Minimum Indoor Air Quality Performance	
1	Y			Prereq 2 Environmental Tobacco Smoke (ETS) Control	
1				Credit 1 Outdoor Air Delivery Monitoring	1
1				Credit 2 Increased Ventilation	1
1				Credit 3.1 Construction IAQ Management Plan—During Construction	1
1				Credit 3.2 Construction IAQ Management Plan—Before Occupancy	1
1				Credit 4.1 Low-Emitting Materials—Adhesives and Sealants	1
1				Credit 4.2 Low-Emitting Materials—Paints and Coatings	1
				Credit 4.3 Low-Emitting Materials—Flooring Systems	1
Points: 10				Credit 4.4 Low-Emitting Materials—Composite Wood and Agrifiber Product	1
				Credit 5 Indoor Chemical and Pollutant Source Control	1
2 to 4				Credit 6.1 Controllability of Systems—Lighting	1
2				Credit 6.2 Controllability of Systems—Thermal Comfort	1
2 to 4				Credit 7.1 Thermal Comfort—Design	1
				Credit 7.2 Thermal Comfort—Verification	1
				Credit 8.1 Daylight and Views—Daylight	1
Points: 35				Credit 8.2 Daylight and Views—Views	1

VOC limits in LEED

Intent

Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants.

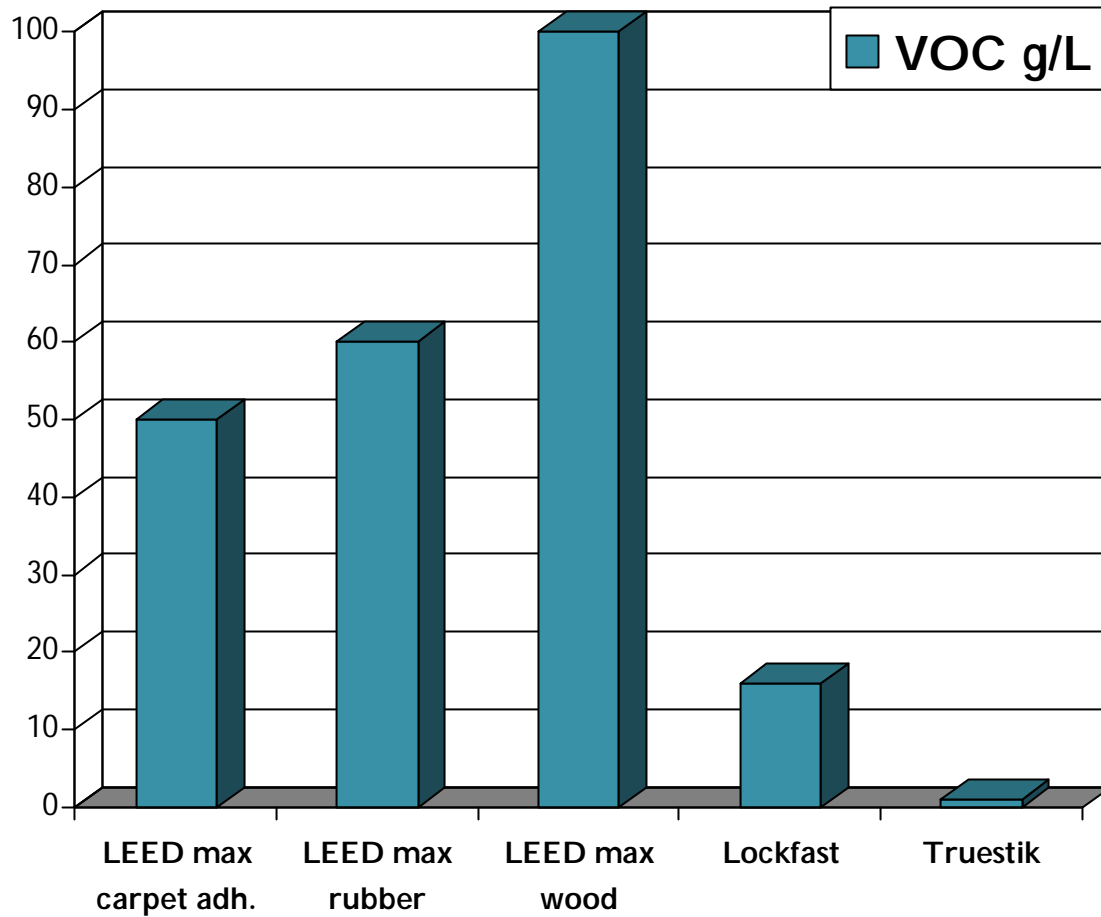
Requirements

All adhesives and sealants used on the interior of the building (defined as inside of the weatherproofing system and applied on-site) shall comply with the requirements of the following reference standards:

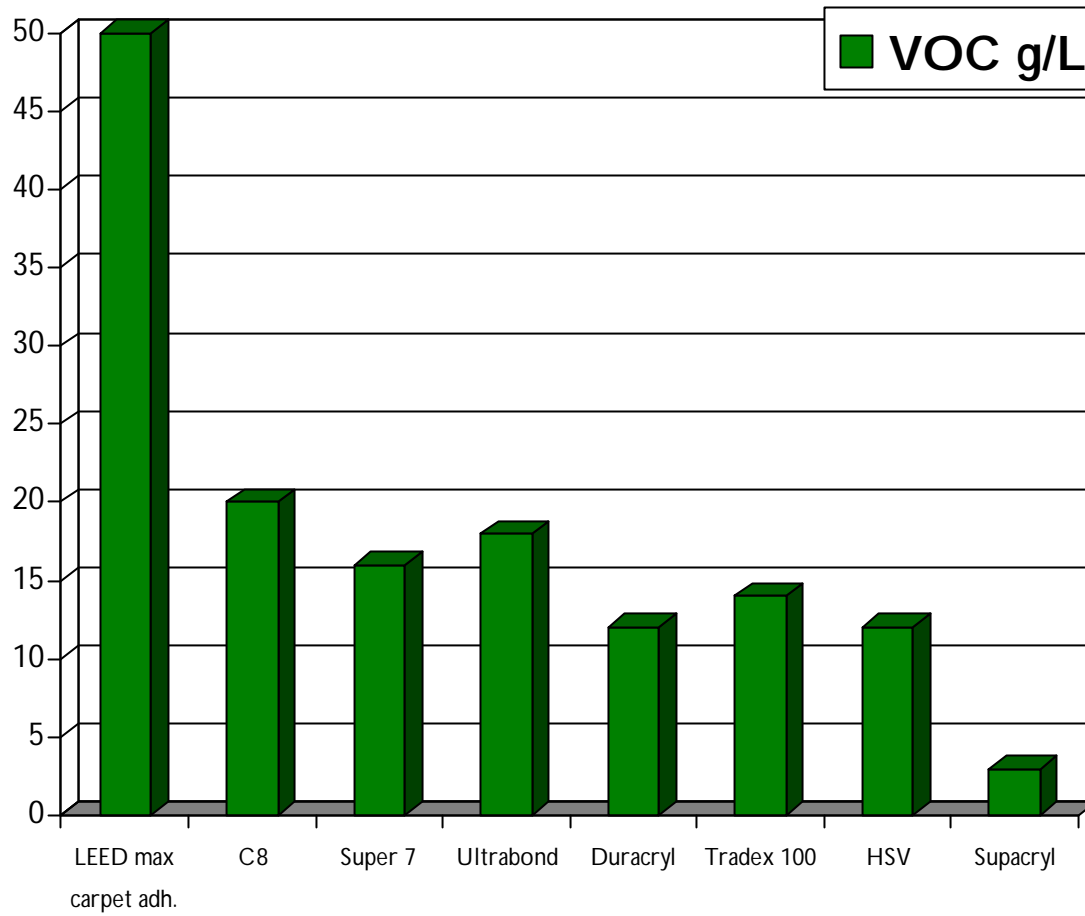
- ❑ Adhesives, Sealants and Sealant Primers: South Coast Air Quality Management District (SCAQMD) Rule #1168. VOC limits are listed in the table below and correspond to an effective date of July 1, 2005 and rule amendment date of January 7, 2005.

Architectural Applications	VOC Limit [g/L less water]	Specialty Applications	VOC Limit [g/L less water]
Indoor Carpet Adhesives	50	PVC Welding	510
Carpet Pad Adhesives	50	CPVC Welding	490
Wood Flooring Adhesives	100	ABS Welding	325
Rubber Floor Adhesives	60	Plastic Cement Welding	250
Subfloor Adhesives	50	Adhesive Primer for Plastic	550
Ceramic Tile Adhesives	65	Contact Adhesive	80
VCT & Asphalt Adhesives	50	Special Purpose Contact Adhesive	250
Drywall & Panel Adhesives	50	Structural Wood Member Adhesive	140
Cove Base Adhesives	50	Sheet Applied Rubber Lining Operations	850
Multipurpose Construction Adhesives	70	Top & Trim Adhesive	250
Structural Glazing Adhesives	100		

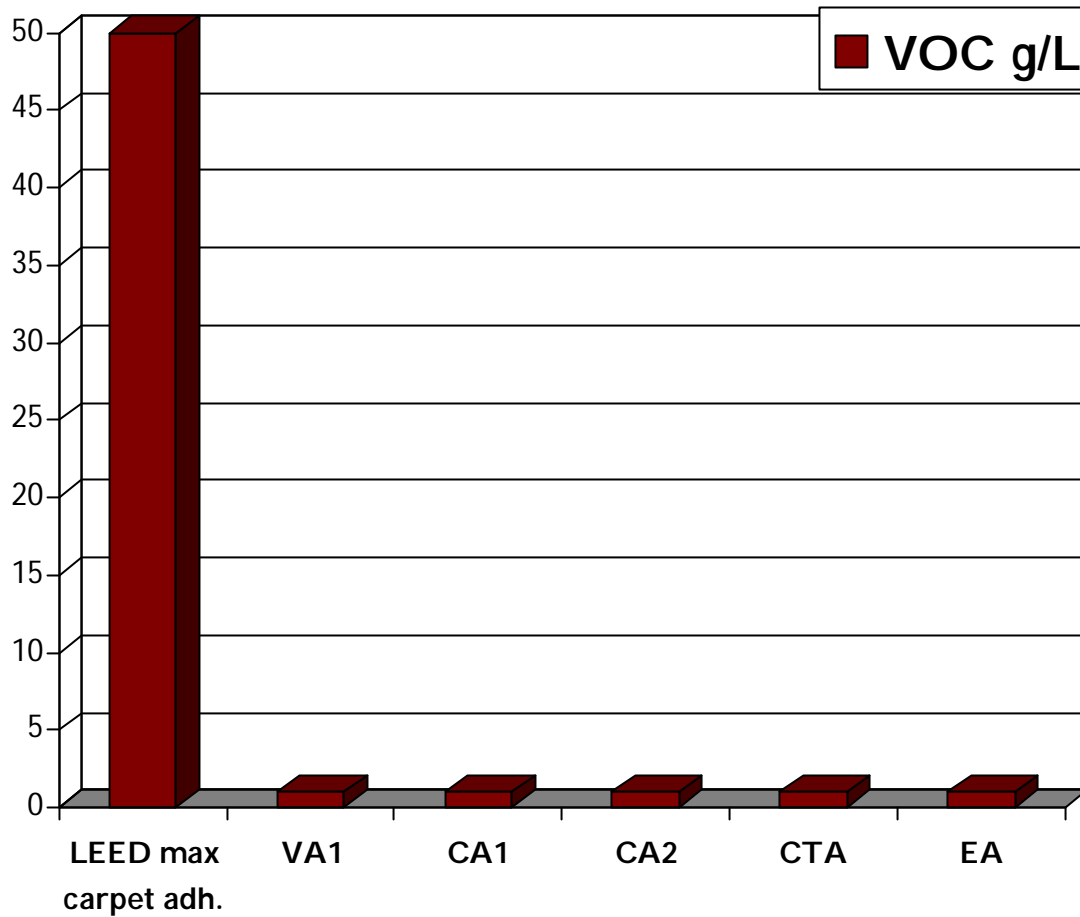
Even the Lockfast brand is lower than the LEED system VOC limits.
(grams / litre based on dry adhesive solids)



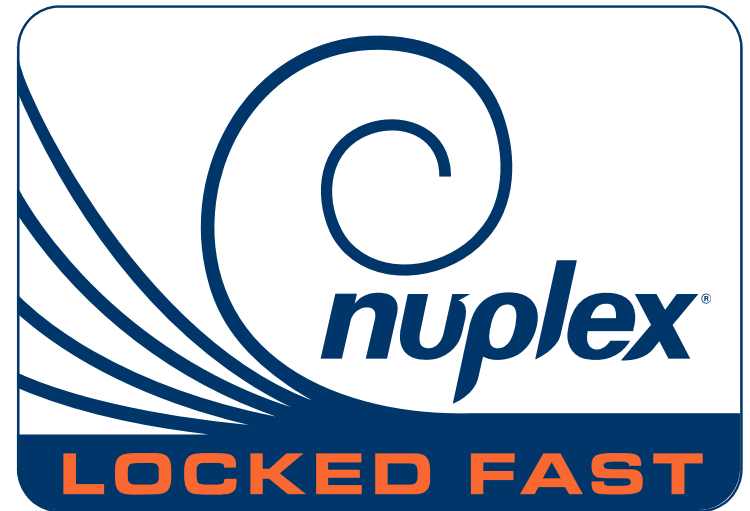
Lockfast brand vs LEED system VOC limits. (grams / litre based on dry adhesive solids)



TRUESTIK brand vs LEED system VOC limits. (grams / litre based on dry adhesive solids)



Nuplex introduced **LOCKED FAST** brand to define understanding that being VOC free is not enough on its own. The bond must be strong and permanent.

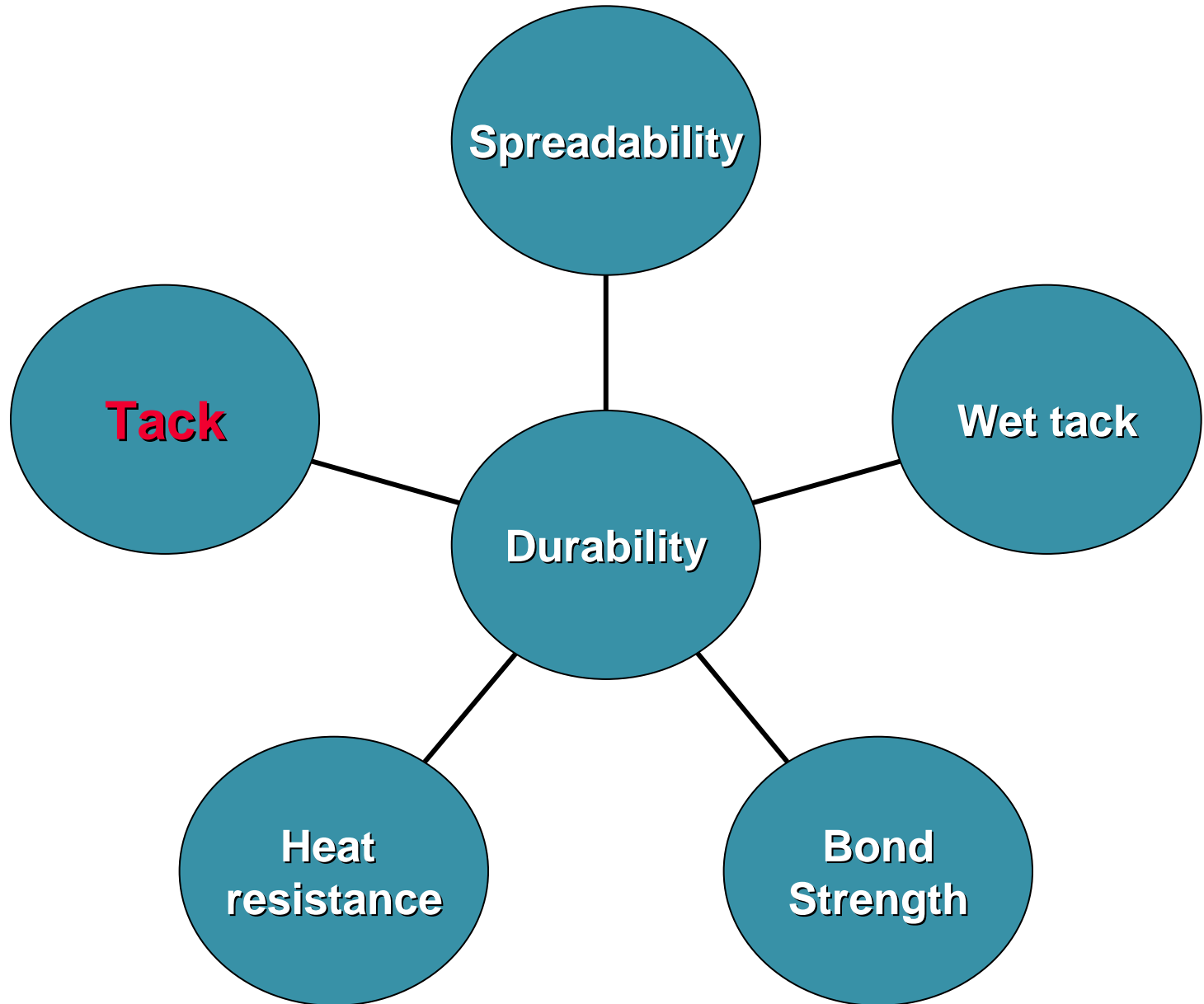


Truestik

The Nuplex environmentally friendly adhesive range



Nuplex Adhesives in Flooring



How do we make the Choice?

- **Functional Needs**

- Tack
- Heat resistance
- Rising damp resistance
- Bond strength
- Flexibility

- **Substrate Condition**

- Strength
- Levels
- Contamination
- Damp Membrane
- Joint Construction

Aesthetic Requirements



Budget Available and clients expectations of durability



Choose Product

Conclusion

Nuplex Lockfast and Truestik Adhesives

1. **MORE DURABLE**
2. **MORE COST EFFECTIVE**
3. **MORE VERSATILE**
4. **WILL STAY STUCK AND
REDUCE THE LIFE CYCLE
COST OF FLOORS.**

We are referring to commercial adhesives, where clients are making an investment in long lasting floors.



www.nuplexconstruction.com.au

www.nuplexconstruction.co.nz

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