Demonstrate knowledge of Chemicals in the flooring industry - part 1

Video acknowledgement - Armstrongs

Tutorial

This tutorial covers the make up and safe use of the many types of adhesives and coatings that are used everyday in the flooring industry.

The common products we will look at will be:

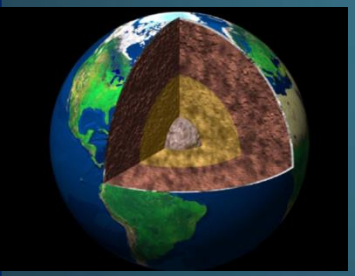
1. Everyday adhesives for resilient, carpet and timber floor coverings
2. Adhesives and coatings used in areas where there is excess heat or moisture, two part and moisture cure systems

Many of the key terms used for adhesives are in green writing. For example tack time, working time, flash point …..

Petrochemical

Natural Gas

Crude Oil



Methane → Methanol

Ethane
Propane
Butane → Ethylene
Propylene
Butylene

Naptha → Benzene
Toluene
Xylene

- Plastics
- Resins
- Fibers
- Textiles
- Elastomers
- Rubbers
- Solvents
- Coatings
- Dyes & Pigments
- Adhesives
- Chemicals
- Other Consumer Products

Adhesives for vinyl

Due to the make up of vinyl (PVC, plasticiser) the common adhesive used is Acrylic based. Acrylic is a low toxic adhesive and is made from oil. New generation technology is developing adhesives that are not totally reliant on petroleum products

Composition: Polystyrene polyacrylate dispersions, thickening, wetting and defoaming agents and preservatives, fibres, mineral fillers, water.

TYPICAL PROPERTIES

Appearance	Cream / White
Base	Acrylic
Solids	Approx 70%

· New Zealand Inventory of Chemicals	
CAS: 14808-60-7	Quartz (SiO2)
CAS: 8050-25-7	Triethylenglycol-Rosin-Ester
CAS: 91081-53-7	modified balsamic resin
CAS: 9003-11-6	Polymerization products of propyle
CAS: 25322-69-4	polypropylene glycol
CAS: 150-76-5	hydroquinone monomethyl ether
CAS: 2682-20-4	2-methyl-2H-isothiazol-3-one
CAS: 2634-33-5	1,2-Benzisothiazol-3(2H)-on
CAS: 7732-18-5	water, distilled, conductivity or of similar purity
· New Zealand HSNO Hazard Classes and Categorie	
None of the ingredients is listed.	

Silicon/Silane

Tree resins

DESCRIPTION:
Polymer 265 Vinyl Adhesive is a co-polymer acrylic emulsion with excellent plasticiser resistance and non-staining properties. It is protected against bio-degradation, withstands normal wet cleaning practices and is suitable for use over underfloor heating installations.

DESCRIPTION

ARDEX AF 2365 is a water-based, low odour, solvent free, acrylic, emulsion-based floorcovering adhesive. ARDEX AF 2365 offers excellent application properties and is protected from biodegradation and has good resistance to plasticiser migration.

How a wet adhesive works

Everyday Adhesives for vinyl and carpet are dispersed in water

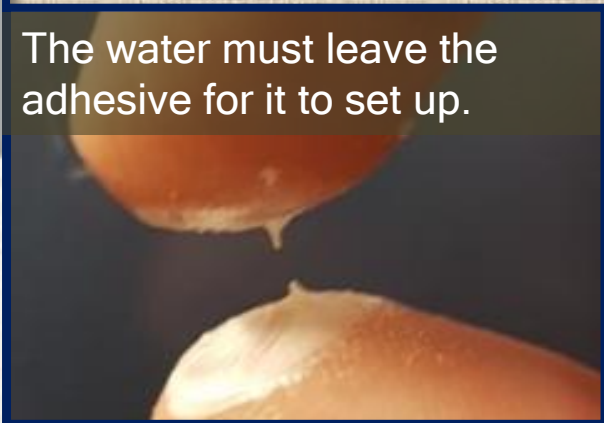
The tack time (open time) - the maximum time allowed before the sheet/tile can be laid into the adhesive.. E.g.15 minutes

The working time- is the total time an installer has to fit and roll the sheet before the adhesive sets hard **(Hard set)**

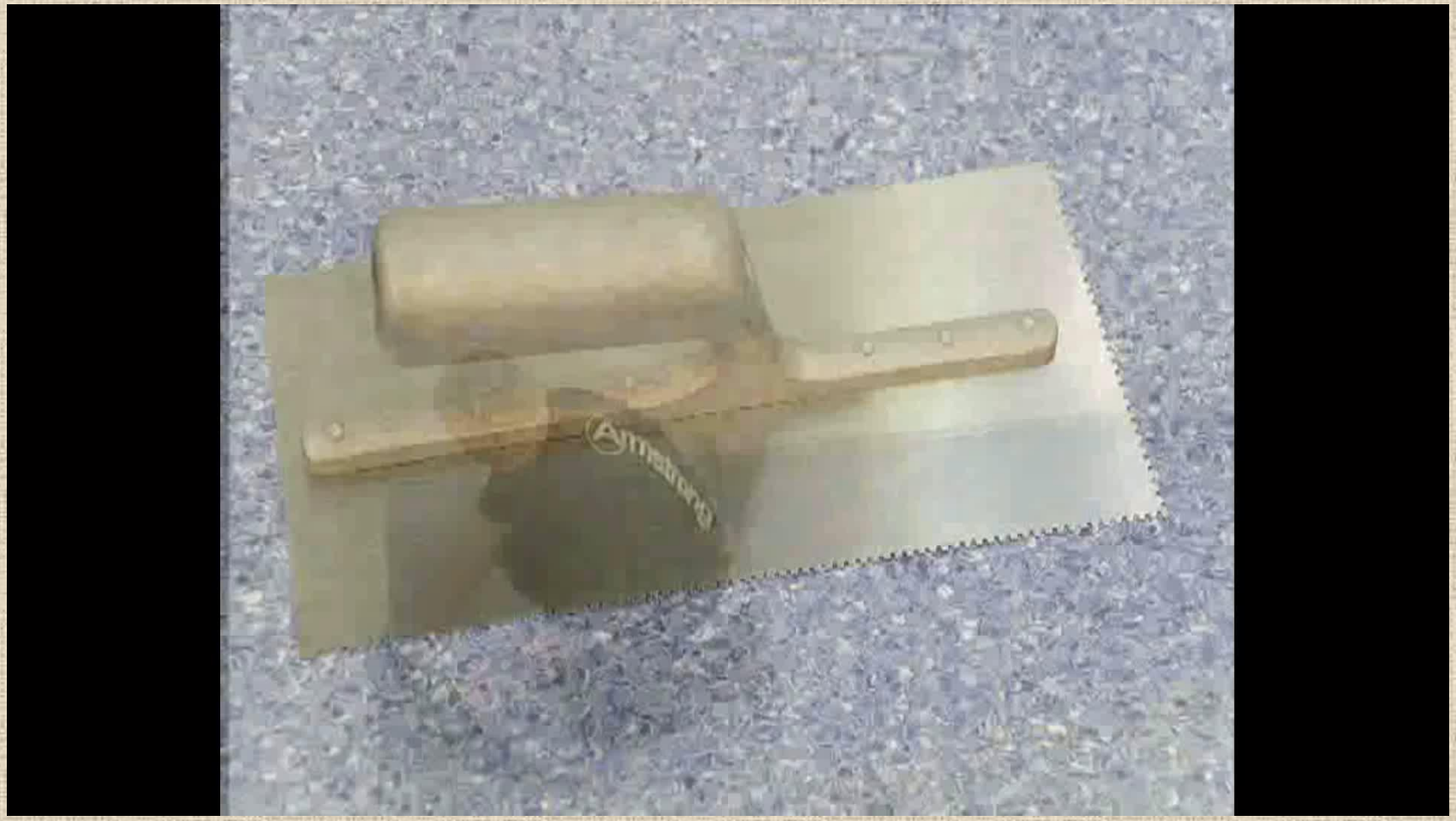
This means the adhesive solids **(Solid content)** are mixed with water **(the carrier)** to keep it in liquid form so it can be applied. Solid content ratio with water is measured as a percentage
These adhesives have a tackifier/plasticiser to stop the vinyl from setting hard to fast. The adhesive will go tacky then hard

The adhesive will go tacky

The water must leave the adhesive for it to set up.



Watch Video on how adhesives tack up



Pressure Sensitive Adhesives

Acrylic adhesives for vinyl and carpet tiles (floors not walls). They are let dry to a permanent tacky state before installation. This allows for an instant bond and also allows tiles to be replaced

Non porous surfaces

If a vinyl is installed over a non porous surface the water and tackifiers will not move out of the adhesive meaning it will stay wet and not set up. The result will be a gooey/greasy mess

An epoxy moisture barrier will need a cementitious levelling compound to allow the water in the adhesive to soak into the compound: Ardex

New concrete floors that are power floated to a smooth shiny finish will need grinding to open up the pores

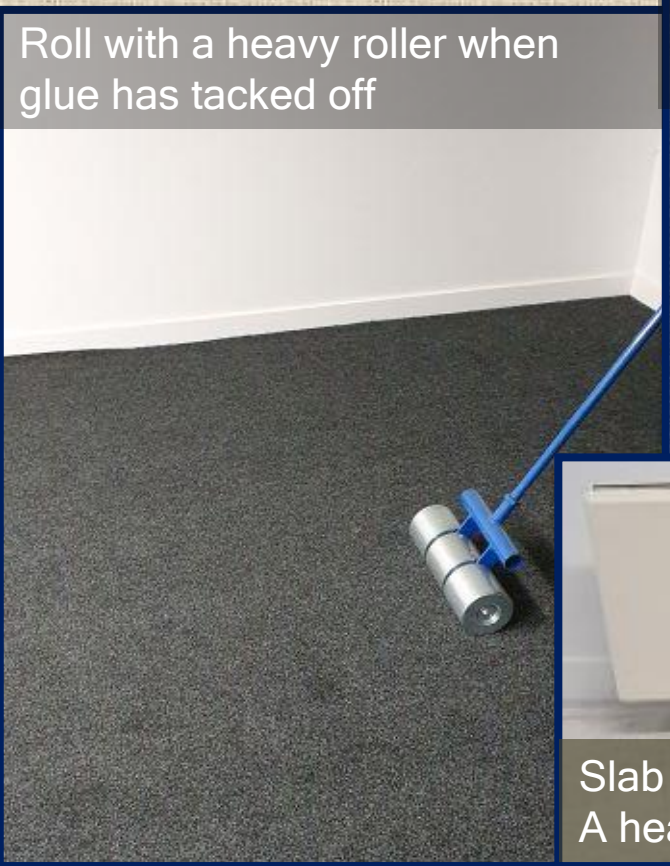
Working in Low temperatures

Water dispersive technology is always developing, however being water it struggles to disperse in low temperatures

Drop the carpet into the wet adhesive

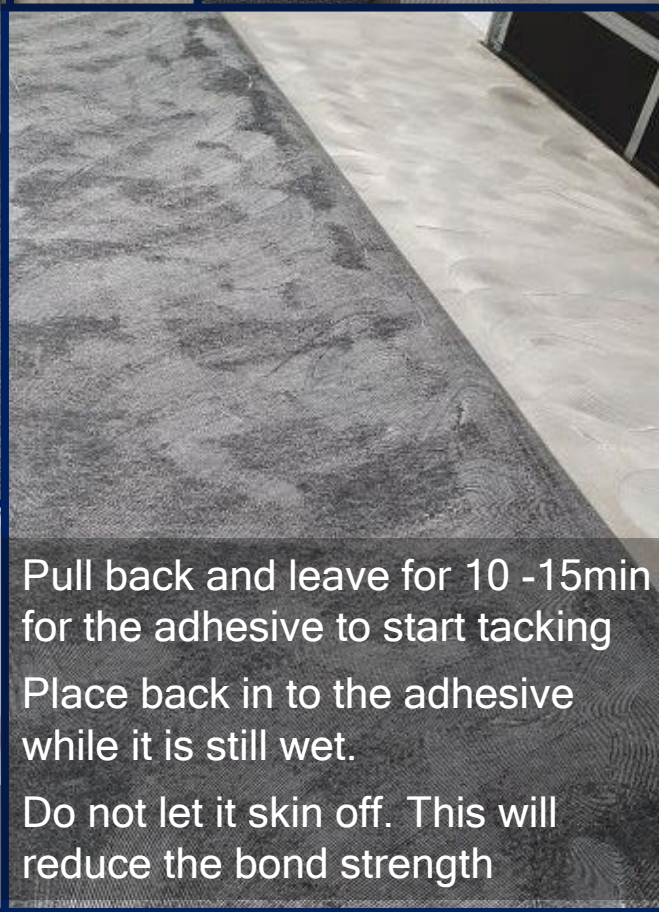
Roll with a wall roller to transfer the adhesive

Roll first with a wall roller to prevent moving the sheet about



Roll with a heavy roller when glue has tacked off

Slab and Room temperature
A heater can take the chill off the air



Pull back and leave for 10 -15min for the adhesive to start tacking

Place back in to the adhesive while it is still wet.

Do not let it skin off. This will reduce the bond strength

Adhesives for carpet

Adhesives for carpet can be both acrylic and latex (**the solid content**) in nature. With new technology such as silon base continually coming on to the market. Carpets need more solid content and chemicals that allow for high grab

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CAS: 14808-60-7	Quartz (SiO_2)
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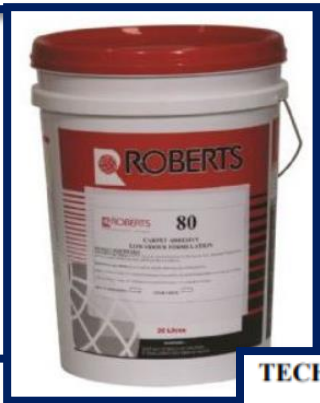
Silicon

Tree resins

PRODUCT DESCRIPTION

Giltgrip 22 is a water-based Latex adhesive with low in VOC



TECHNICAL CHARACTERISTICS

Ultrabond Eco 170 is an acrylic adhesive in water dispersion, formulated in a ready to use light beige paste.

GENERAL DESCRIPTION

A high solid latex based adhesive for adhering most carpets incl Actionbac, woven carpets in both direct stick and double bond installations. It is very versatile with good moisture and alkali resistance.

TECHNICAL DATA

Appearance:	Off White
Base:	Synthetic Latex
Solids:	Approx. 63%

Composition: Modified polyacrylate copolymers, resins and resin esters of vegetable origin, thickening-, wetting- and de-foaming agents and preservatives (isothiazolinone), other additives, mineral fillers, water.

The difference between Primers and Sealers

A sealer seals porosity

A primer primes to help with bonding on a nonporous surface

Some do both and act as a moisture suppressant

For levelling compounds to work they must have a primer that closes the pores and help with bonding to the compound

The application method and rate must be as specified in the Technical Data Sheet for the product that is being used. Do not spray unless it is stated.

Penetrating sealer- changes moisture into a gel reducing vapour transmission from concrete

Porous and non porous plus moisture suppressant

Pore closer and Bonding agent

Complete the task 1 terminology section for just the water based products