DEHESIVE® 955

Release Coatings - Solvent Based

Characteristics

DEHESIVE® 955 is a special designed solvent based addition curing silicone for release coatings, the specific advantages of this system are its excellent anchorage, low release and fast cure performances.

Features:
- Two component system
- Fast cure
- Excellent anchorage on film and paper
- Low release
- Long pot life
- Controllable release force with CRA® 81

Application

DEHESIVE® 955 may be used for coating of papers, PE-laminated papers and films such as PE, PP and PET. Siliconised films and papers are normally used for making pressure sensitive laminates such as labels, tapes and graphics and for any self adhesive or sticky material.

Processing

DEHESIVE® 955 is a thermal-curing system that cures at web temperature of 80 – 200°C. The cure speed depends on the formulation, type of substrate, quality of solvent, the chosen temperature and the effectiveness of the oven (s. Fig. 1: Vulcanization curve for guide formulation).

Generally DEHESIVE® 955 is diluted to give a formulation with an active substance content of about 5%. However, depending on the used substate and coater system DEHESIVE® 955 may be used with lower or higher avtive substance contents. Special care must be taken to select a high quality solvent that will not poison the Pt-catalyst. Other poisons included organo tin compounds, sulphur compounds (often found on coating rolls vulcanised with sulphur), amines, zinc stearate and phosphites.

To maintain the quality of the coating compounds, prepare the batch in clean vessels made of stainless-steel, glass, enamel or solvent-resistant plastic. Suitable solvents are aliphatic and aromatic hydrocarbons (e.g. toluene, white spirit), esters and ketones.

Laboratory trials are recommended prior to using the material in production in order to verify that vulcanisation performance suits the intended application. During processing, check the processing parameters to ensure optimum coating performance.

Guide formulations for easy release application (active substance content 4 - 5 %):

Substrate	DEHESIVE® 955 [kg]	Solvent [kg]	Crosslinker V 99 [kg]
PEK, PE, PP	10	60	0,5 – 0,7
Paper	10	60	0,5 – 1,0
PET	10	60	1,0 – 1,5

The order of addtion would be DEHESIVE® 955, solvent and then crosslinker. Coating can begin immediately after mixing has been completed .this formula should have a pot life of up to 12 hours at 25 °C. However, it is advisable to renew the mixture every 4 hours in order to retain the highest reactivity of the mixture.

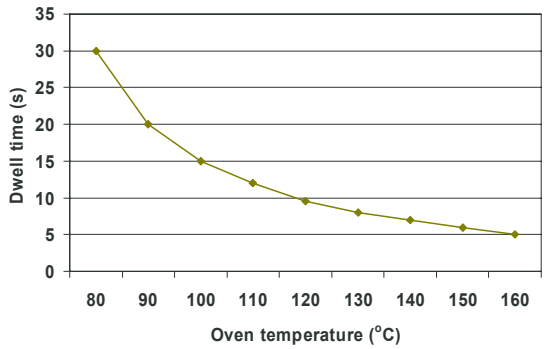
For special requirements (e.g. higher production speed, improved anchorage) our technician will gladly advise you about the right formulation.

Table I: Product data

Product name		DEHESIVE® 955	Crosslinker V 99	CRA® 81
Appearance		slightly yellowish	colorless	colorless
Solvent		Toluene	Toluene	Toluene
Active substance content	[%]	30 ± 1	8	50
Viscosity at 25 °C	[m Pas]	17000 -25000	0,81	5 - 7
Density at 25 °C	[g/cm^3]	0,89	0,87	0,9
Flash point	[°C]	4	4	4
Ingition temperature	[°C]	> 300	>200	> 200
Storage stability at 25 °C	[months]	12	12	12

These figures are only intended as a guide and should not be used in preparing specifications.

Fig. 1: Vulcanization curve for guide formulation:



Substrate: Glassine paper (62 g/m²), Silicone coat weight: 1,0 -1,2 g/m², curing criterion: no smear. no rub-off, subsequent adhesion > 95% (FTM 11).

Storage

The products should have the shelf life given in the table I if stored in tightly closed in their original containers at 20 - 25 °C. Avoid exposure to moisture. The “Best use before” date of each batch is shown on the product label.

Storage beyond the date specified on the label does not necessarily mean that the product is no longer usable. In this case however, the properties required for the intended use must be checked for quality assurance reasons.

Additional information

Release Value

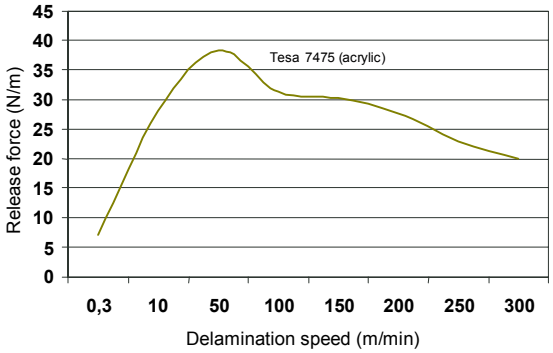
Release value depends on several factors e.g. type of adhesive, adhesive coat weight, test method, the type of the substrate, silicone coat weight, curing performance, etc. We tested several types of adhesives on the market by wet casting, low release values are consistently achieved with DEHESIVE® 955 system. However standard release value can only be given by using standard test adhesive tapes.

The following release force values can be obtained with the DEHESIVE® 955-system based on the test methods FTM 10 (substrate: PE-laminated paper 130 g/m², silicone coat weight 0,5 g/m², 24 h post cured at room temperature): The release value with the TESA´s tape 7475 (acrylic) is 5 – 7 N/m.

DEHESIVE® 955-system performs low release at high laminating speeds (see Fig. 2: Release force with increasing of delaminating speed), this is very useful advantages for manufacture of self-adhesive labels to avoid lattice cracks at high label stamping speed.

Generally best release stability can be achieved if the release liner is stored away from direct UV-exposure.

Fig. 2: Release force as a function of delaminating speed



Substrate: PEK (130 g/m²), silicone coat weight: 0,5 - 0,6 g/m², curing criterion: no smear, no rub-off, subsequent adhesion > 95% (FTM 11), test method: FTM 10 and FTM 4 (adhesive liner removal).

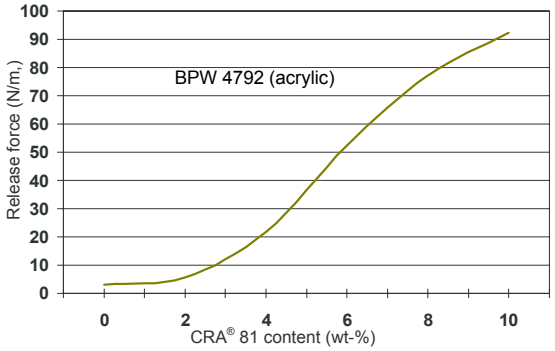
The release values can be modified within a wide range by using the controlled Release Additive CRA® 81 (see Fig. 3: Release force with increasing amount of CRA®).

Guide formulation with CRA® 81 (active substance content 4 – 5%, for all kind of substrate):

CRA® - content [wt.%]	DEHESIVE® 955 [kg]	Solvent [kg]	CRA® 81 [kg]	X-linker V 99 [kg]
1	10	60	0.06	1,0 – 1,5
2	10	60	0.12	1,0 – 1,5
3	10	60	0.18	1,0 – 1,5
4	10	60	0.24	1,0 – 1,5
5	10	60	0.30	1,0 – 1,5
6	10	60	0.36	1,0 – 1,5
7	10	60	0.42	1,0 – 1,5
8	10	60	0.48	1,0 – 1,5
9	10	60	0.54	1,0 – 1,5
10	10	60	0.60	1,0 – 1,5

The order of addition: DEHESIVE® 955, solvent, CRA® and then crosslinker

Fig. 3: Release force with increasing amount of CRA® 81



Substrate PEK 130 g/m², silicone coat weight 0,5 – 0,6 g/m, curing criterion: No smear, no rub-off, subsequent adhesion > 95% (FTM 11), test method: FTM 10 (adhesive liner removal)

Anchorage

DEHESIVE® 955/Crosslinker V 99-system has an excellent anchorage property to most types of papers and films.

For very difficult substrate, anchorage can be improved with the addition of adhesion promoter HF 86 into the formulation. A guide formula containing 1 – 3 % HF 86 by weight of active substance is recommended.

In general, to improve adhesion of PE and PP-films corona pre-treatment on the films is also recommended.

Application in the food sector

The guide formulations are not recommended for application in the food sectors.

Safety information

DEHESIVE® 955, CRA® 81 and Crosslinker V 99 are flammable. The raw materials and formulated products must be kept away from heat and sources of ignition. Avoid contact with skin and eyes. Detailed safety information is contained in each material data safety sheet that can be obtained from our sales offices.

Version 1.10 from 01.10.03 replaces Version 1.00 from 05.03.03