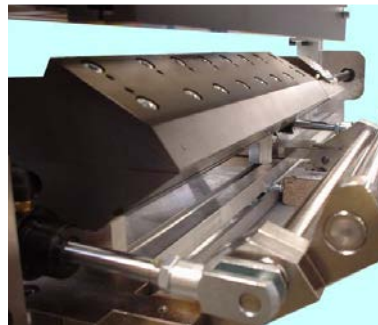


Cleaning of slot nozzles and applicator heads



Jowat® flushing agents purge adhesive remnants from hoses, melter, and application nozzles, and stop the reaction of PUR hot melt adhesives

Jowat® cleaner detaches adhesive remnants in the application system



Cleaning of slot nozzles and applicator heads

1. Jowat® flushing agents

A fully functional nozzle application system and reservoir unit are of major importance for a smooth and reproducible adhesive application. The cleaning effort varies depending on the application system and unit, and depends largely on the type of adhesive used.

It is recommended that the application system be cleaned before any downtimes and adhesive changes, and Jowat supplies a range of flushing agents and cleaners for that purpose. Jowat® flushing agents purge the adhesive from the system and stop the chemical reaction of PUR hot melt adhesives. Before the cleaning of the application system is started, it must be ensured that the Jowat® flushing agent and the adhesive used are compatible. To prevent plugged hoses and nozzles, due to an unwanted reaction, especially in closed application systems, it must be ensured that the PUR hot melt adhesive and the Jowat® flushing agent are melted evenly.

The primary task of a flushing agent is to physically push out the adhesive from the hoses and the application unit, and therefore to purge product remnants from the system. Due to the general flow behaviour of liquids (cf. figure 1, on the right), the flow velocity is significantly lower at the walls compared to the centre of the hose. To ensure that the hoses are cleaned thoroughly, it is thus necessary to use a sufficient amount of flushing agent.



Figure 1: General flow behaviour

Apart from the flow velocity, viscosity also plays a role in the purging process. If the viscosity of the flushing agent is too low, it will only purge the adhesive in the centre of the hose (cf. figure 2). Under those circumstances, it will not be possible to remove all the adhesive. To find out the viscosity of the flushing agent and the hot melt adhesive, please refer to the corresponding Technical Data Sheets.

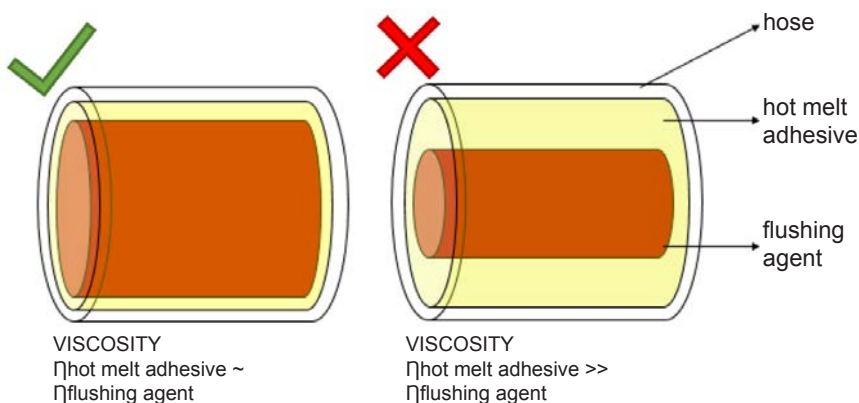
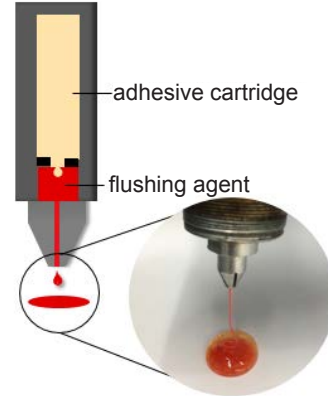


Figure 2: Effect of viscosity on the purging process

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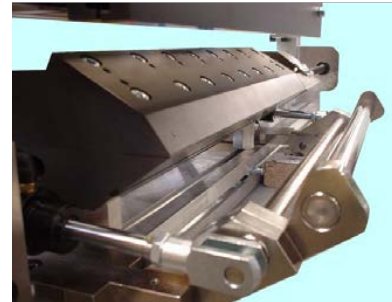
2. Cartridge melters

In case of longer downtimes, flush with one half cartridge or slug of Jowat® flushing agent. Turn off the unit and allow cooling. If the processed adhesive was a PUR hot melt, it is especially important that all adhesive remnants are purged from the system. Otherwise, it could create an insoluble compound. Jowat® flushing agents contain reaction inhibitors that hinder the crosslinking of the adhesive. When starting up again, remove the container with flushing agent after heating, insert the adhesive, and make sure the adhesive extrudes all remnants of the flushing agent. Carry out the procedure until there are no more traces of red colour (only applicable for red-coloured flushing agent) in the adhesive.



3. Slot nozzles and applicator heads

The application head, nozzle or slot nozzle may be protected overnight or on weekends with a paraffin oil or water- and acid-free mineral grease, or with a Jowat® flushing agent, so that no moisture can penetrate into the system and cause an unwanted reaction. Before start-up, thoroughly clean the nozzles from the outside (during the heating phase) and completely purge all flushing agent remnants from the system with PUR hot melt adhesive.



4. Drum melters

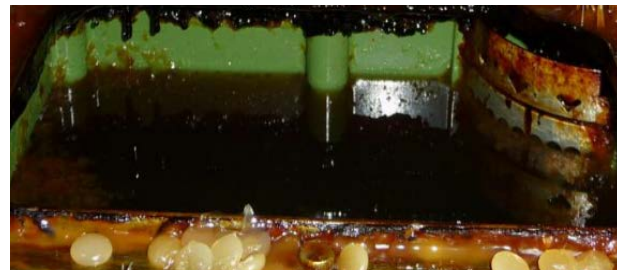
Avoid any contamination during drum changes. The heating plate is to be cleaned and remnants around the sealing rings are to be removed. Greasing the sealing rings with a suitable water-free and acid-free grease (e.g. rolling bearing grease "Petamo GY 193" supplied by Klueber Lubrication) facilitates easier cleaning and thus considerably reduces the downtime during the change of drum. The drum may not remain open longer than necessary.



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5. Changing from an EVA to a PO hot melt adhesive

Changing between hot melt adhesives based on EVA and PO can lead to an unwanted cleaning effect. Due to the different properties of the products, charred adhesive residues are detached from the reservoir wall. Those residues are then spread through the entire application system and can cause flawed bonding in the worst case. To prevent this from happening, the application system (tank, nozzles, hoses, etc.) should be flushed at low temperature and pressure with either the new adhesive itself or with flushing agent Jowat® 931.00 or 931.10, depending on the viscosity of the adhesive to be purged. In addition, the filters should be cleaned and, if necessary, replaced. Furthermore, it is also necessary to thoroughly flush the drain valve. The flushing and cleaning procedure should be repeated several times. It is recommended to clean the system again after several days or weeks. Residues can also be filtered out by installing inline filters in front of every application nozzle.



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Filter screens should be checked more often at first and replaced if necessary.

6. Chemical cleaning of metal parts

The cleaner Jowat® 930.60 detaches charred and cured adhesive from tools, nozzles, filters, and other small parts made of metal. The disassembled metal parts may be cleaned in a heated bath at approx. 180 °C (e.g. in a commercially available deep fryer). Depending on the degree of contamination, the cleaning procedure may take about 60 to 120 minutes. The temperature of the bath must not exceed 190 °C. Remove parts from the bath, allow for cooling, rinse with water, and dry. Please also observe the recommendations of the equipment manufacturer.

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Seals and other plastic parts may be dissolved by the cleaner Jowat® 930.60 and may need to be replaced!

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7. Technische Daten

Jowat® flushing agent	Viscosity at T_v [mPas]	Density	Appearance	T_v [°C]	Remarks
930.30/34	9,000	0.95	colourless / red	120	Flushing agent for low-viscosity PUR hot melt adhesives.
930.40	approx. 20,000	0.9	colourless	160	Flushing agent for POR hot melt application units.
930.70/74	28,000	0.95	yellow-beige / red	120	Flushing agent for high-viscosity PUR hot melt adhesives based on polyester
930.84	11,000	0.93	colourless	120	Flushing of tank units and glue pots of edgebanders. Good detaching of adhesive remnants. Very good cleaning effect.
930.90/94	35,000	0.95	amber / red	140	For flushing application units used to apply PUR hot melt based on acrylate.
931.00	50,000	0.95	transparent	190	For flushing application units, hoses, and nozzles used for applying PO hot melt adhesives.
931.10	8,000	0.95	transparent	190	For flushing application units, hoses, and nozzles used for applying PO hot melt adhesives.
930.60	liquid	1.1	colourless	180	For cleaning application units and tools used for applying PUR hot melt adhesive. Can also be used for conventional hot melt adhesives. After cleaning, remove all remnants with a flushing agent.

T_v = Processing temperature

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8. Remarks

PUR hot melt adhesives contain isocyanate groups as reactive component. Isocyanate vapours may be released at higher adhesive temperatures. Vapours that may form are to be extracted via suitable ventilation and extraction systems. For more information concerning safety, handling, transport, and disposal, please refer to the corresponding Safety Data Sheet (available upon request).

The information on this manual is based on test results from our laboratories as well as on reported experience gained in the field by our customers. It can, however, not cover all parameters for each specific application and is therefore not binding upon Jowat, nor should it be relied upon in lieu of your own required testing. The information given in this leaflet does not represent a performance guarantee. Unless otherwise agreed with our customers, the values stated in the section "Specification" shall be regarded as the product properties finally agreed. No liability may be derived from the information contained herein nor from the information provided by our free technical advisory service.

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