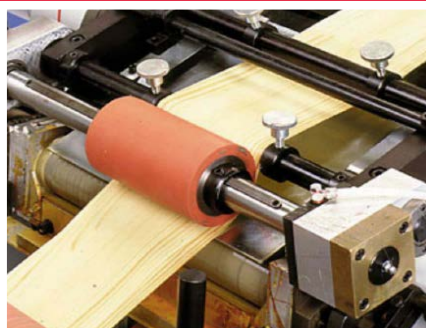
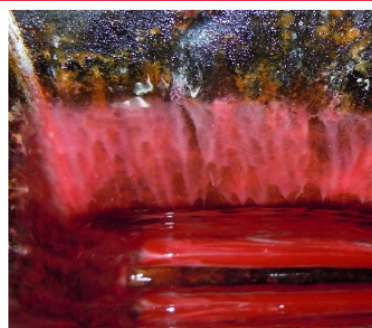




Wrapping units Cleaning and adhesive change



Jowat® flushing agent flushes out adhesive residues from hoses, melter and application nozzles, and stops the chemical reaction of PUR hot melt adhesives

Jowat® cleaner detaches adhesive residues in the application system



Wrappin units - Cleaning and adhesive change

A fully functional adhesive application system and melting unit are of major importance for a smooth and reproducible adhesive application. The cleaning effort varies based on the application system and unit, and depends largely on the type of adhesive used. If the old and the new hot melt adhesive are based on different chemicals, it is necessary to clean the equipment more thoroughly. Before beginning with the cleaning procedure, it must be ensured that the different adhesives are compatible with each other as well as with the Jowat® flushing agents and cleaners. Especially in closed application systems it should be ensured that PUR hot melt adhesives and the Jowat® flushing agent are melted evenly, to prevent clogged hoses and nozzles due to an unwanted reaction.

If a reactive PUR hot melt adhesive has been processed, the system should be cleaned before downtimes. Jowat supplies a range of flushing agents and cleaners for that purpose. Jowat® flushing agents push out the adhesive and stop the chemical reaction of PUR hot melts. Cleaning with chemical cleaners is usually not necessary if only thermoplastic hot melt adhesives are processed. Flushing the system is usually sufficient and recommended when the adhesive is changed.

1. Melter and hoses

The primary task of a flushing agent is to physically push out the adhesive from the hoses and applicators, and therefore to remove adhesive remnants from the system. Due to the general flow behaviour of liquids (cf. figure 1, right-hand side), 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.

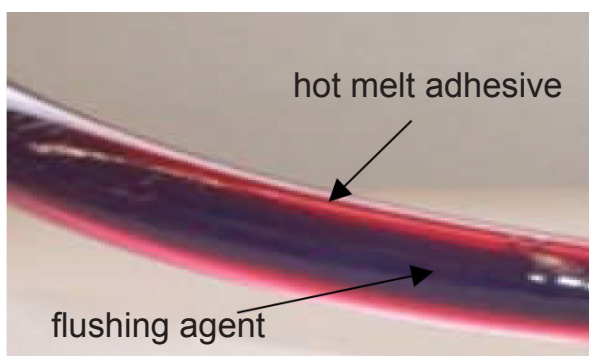


Figure 1: General flow behaviour

Apart from the flow velocity, viscosity also plays a role in the flushing process. If the viscosity of the flushing agent is too low, it will only flush the centre of the hose (cf. figure 2). 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 (available upon request).

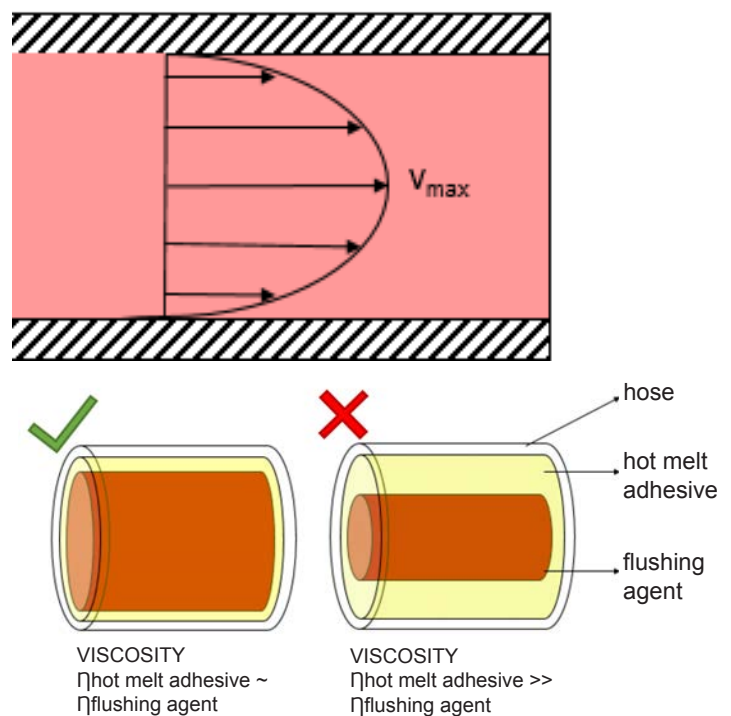


Figure 2: Impact of viscosity on flushing effect

3. Reservoirs

In general, reservoirs for reactive hot melt adhesives should always be blanketed with inert gas to prevent an unwanted reaction of the PUR hot melt with humidity. This is also absolutely necessary if the reservoirs are not emptied and flushed overnight, to prevent the cold adhesive from coming into contact with humidity.

Over extended downtimes (weekends, holidays, etc.) the reservoir has to be emptied and flushed with the flushing agent Jowat® 930.34/.74/.94 until all PUR hot melt adhesive has been removed from the system. A small amount of flushing agent should remain in the reservoir. Furthermore it is also recommended to keep the reservoir blanketed with inert gas. When it cools, the flushing agent will shrink, therefore increasing the cleaning effect (cf. figure 3).

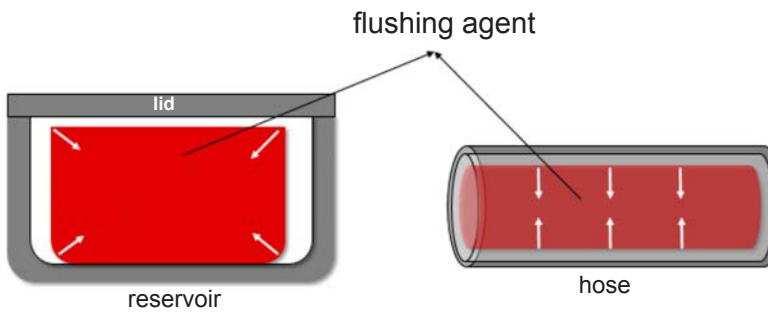


Figure 3: Increased cleaning effect due to shrinking by cooling

4. Drum melters

Avoid any contamination during change of drums. The heating plate is to be cleaned and all residues around the sealing rings are to be removed. For a considerably easier and faster cleaning, the sealing rings can be greased with a suitable water-free and acid-free grease (e.g. rolling bearing grease Petamo GY 193 supplied by Klueber Lubrication). Do not keep the drum open longer than necessary.



4. Slot nozzles and application heads

Nozzle tips and slot nozzles should be sealed overnight and on weekends with a water-free and acid-free paraffin oil, mineral grease or Jowat® flushing agent, to prevent the adhesive from coming into contact with humidity and reacting. Before start-up (during the heating phase), the nozzles and nozzle tips should be cleaned from the outside and flushed with PUR hot melt adhesive to remove all grease and flushing agent residues.



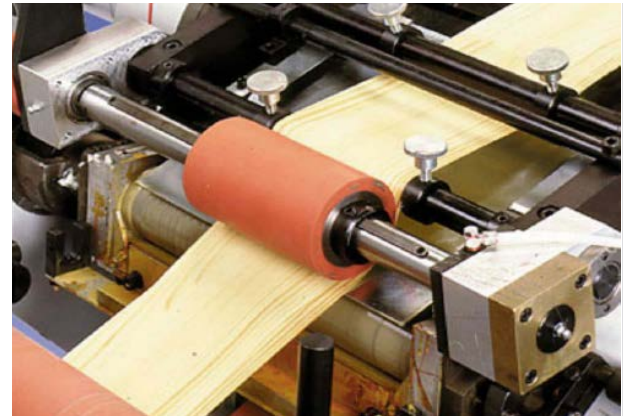
5. Roller pan

Soiled application rollers can lead to an uneven and possibly insufficient adhesive application on the substrate. If only thermoplastic hot melt adhesives are processed, a mechanical cleaning is usually enough.

If the adhesive processed is a PUR hot melt, the roller pan should be emptied, flushed with the flushing agent Jowat® Jowat® 930.34/.74/.94 and then emptied again before weekends, holidays and other extended downtimes. Flushing agent residues can be removed mechanically when cold. Cured residues of PUR hot melt adhesive in the roller pan and on the roller can be removed mechanically. This can be done using a soft brass brush and air from a pressurised air gun (suitable protective equipment must be used). The mechanical cleaning must be carried out in such a way as to prevent any damage to the anti-stick coating on the roller and the unit. When the machine is started up again, fill with PUR hot melt adhesive and flush out all flushing agent residues with the adhesive.

For complete cleaning, detach the roller pan and clean the individual parts in a container with Jowat® 930.60 at approx. 180 °C.

Roller pans used for processing PUR hot melt adhesives based on polyester should be cleaned with flushing agent Jowat® 930.84. It contains a reaction inhibitor that unfolds a very high cleaning effect during the flushing procedure.



6. Chemical cleaning of metal parts

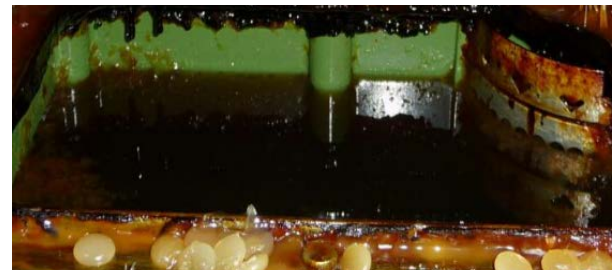
The cleaner Jowat® 930.60 detaches charred and cured adhesive from tools, nozzles, filters, and other small metal parts. The disassembled metal parts may be cleaned in a hot bath at approx. 180 °C (e.g. in a commercially available deep fryer). Depending on the degree of soiling, the cleaning procedure may take approx. 60 – 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.

i

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

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

Changing between an EVA and a PO hot melt adhesive leads to an unwanted cleaning effect. Due to the different properties of the products, charred adhesive residues are detached from the walls and spread through the entire application system. In the worst case, this can lead to flawed bonding. To prevent this, the application system (reservoir, nozzles, hoses, etc.) should be flushed at low temperature and pressure with either the new adhesive or with flushing agent Jowat® 931.00/.10. The filters should be cleaned and, if necessary, replaced. In addition, the drain valve should also be flushed thoroughly. The flushing and cleaning procedure should be repeated several times. A further cleaning of the system after several days or weeks is also recommended. Another possibility to filter out residues is to have inline filters installed in front of every application nozzle.



Wrappin units - Cleaning and adhesive change

8. Technical data

Jowat®	T _p [°C]	Viscosity at T _p [mPas]	Density [g/cm ³]	Appearance	Remarks
930.34	120	9,000	0.95	red	Flushing agent for low-viscosity PUR hot melt adhesives.
930.40	160	approx. 20,000	0.90	colourless	Flushing agent for POR hot melt applicators.
930.74	120	28,000	0.95	red	Flushing agent for medium-viscosity PUR hot melt adhesives.
930.84	120	11,000	0.93	red	For flushing tank melters and roller pans. Good detaching of adhesive residues.
930.94	140	50,000	0.95	red	Flushing agent for high-viscosity PUR hot melt adhesives.
931.00	190	50,000	0.95	transparent	For flushing applicators, hoses, and nozzles used to process high-viscosity PO hot melt adhesives.
931.10	190	8,000	0.95	transparent	For flushing applicators, hoses, and nozzles used to apply low-viscosity PO hot melt adhesives.
930.60	180	liquid	1.10	colourless	For cleaning applicators and tools used to apply PUR hot melt adhesives. Can also be used for conventional hot melt adhesives. After cleaning, remove all residues with a flushing agent.

T_p = processing temperature

9. Precautions / 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.

Jowat | Ihr Partner in Sachen Kleben

Jowat | Your Partner in bonding



The information given in this leaflet is based on test results from our laboratories as well as on experience gained in the field, and does in no way constitute any guarantee of properties. Due to the wide range of different applications, substrates, and processing methods beyond our control, no liability may be derived from these indications nor from the information provided by our free technical advisory service. Before processing, please request the corresponding data sheet and observe the information in it! Customer trials under everyday conditions, testing for suitability at normal processing conditions, and appropriate fit-for-purpose testing are absolutely necessary. For the specifications as well as further information, please refer to the latest technical data sheets.

Jowat – Kleben erster Klasse
Jowat – first class bonding

www.jowat.com



Australia Brasil Canada Chile 中国 Colombia Deutschland France Italia Malaysia Mexico Nederland Polska Россия
Sverige Suisse ประเทศไทย Türkiye United Kingdom United States of America الإمارات العربية المتحدة Việt Nam