

Tangit DTX

Special Adhesive for critical media

CHARACTERISTICS

- For bonding of thermoplastic PVC-U piping systems under pressure acc. EN ISO 15493
- For critical media (see list below)
- Solvent-containing adhesive based on Tetrahydrofuran (THF stabilized)
- Open time 1 Minute
- Gap filling and thixotropic
- d 160 mm max., diameter gap max. +0.4 mm
- If used in combination with PVC-C piping systems max. temperature is 60 °C like PVC-U
- Tangit DTX complies with the requirements of EN 14814, Adhesives for thermoplastic piping systems for fluids under pressure
- CE Marking and DoP (01011)



RESISTIBILITY

The bonded joints are waterproof. Their chemical resistance, especially to inorganic acids, depends on pipe tolerances, curing times, pressure loads, temperatures, acid type and acid concentration. In the case of PVC-C pipes operated under pressure and high temperatures, use the special adhesive Tangit PVC-C (Please request separate Technical Data Sheet). In general, bonded joints made of ABS, PVC-U or PVC-C that are produced using the respective Tangit adhesive are as resistant as the material the pipeline is made of.

Exception: the media listed in the table 1. When exposed to these media, it is recommended to use Tangit DTX Adhesive for producing bonded joints made of PVC-U resp. PVC-C. As these media affect the pipe material, it is also recommended to use pipes of pressure rating PN 16. For all media not listed below or used in lower concentrations, the adhesives Tangit PVC-U or PVC-C can be used if also the pipe and fittings are suitable. When using Tangit DTX in the construction of PVC-C pipelines exposed to the acids listed below, it is necessary to observe the pressure and temperature requirements for PVC-U! For details regarding media concentration, pressure & temperature ratio and service life please contact Henkel Adhesive Technologies or Georg Fischer Piping Systems.

Table 1: Critical media

Medium	Concentration
Sulphuric acid	> 70% - ≤ 93% H ₂ SO ₄
Hydrochloric acid	> 25% - ≤ 37% HCl
Nitric acid	> 20% - ≤ 55% HNO ₃
Sodium hypochlorite (calcium hypochlorite)	> 6% - ≤ 15% NaOCl active chlorine
Hydrogen peroxide	> 5% - ≤ 70% H ₂ O ₂
Hydrofluoric acid	≤ 40% HF

The DF (Derating factor) is always min. 1.6. Detailed information about chemical resistance is available on www.gfps.com and www.tangit.com. Requests could also be directed to: chem@georgfischer.com.

APPLICATION FIELD

For bonding of thermoplastic PVC-U and PVC-C piping systems under pressure acc. EN ISO 15493 for critical media.

INSTRUCTIONS FOR USE

Preparation of pipes

If pipe ends and sockets have not yet been prepared according to the illustrations below, they must be chamfered and deburred. No tight and durable bond can be produced unless pipes have been properly chamfered.

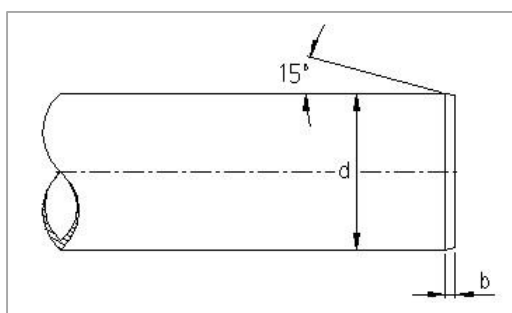


Figure 1: Preparation of pipes

Table 2: Measure b per pipe outer diameter

Pipe outer diameter d (mm)	Measure b about (mm) application with fittings
up to 16	1-2
20-50	2-3
63-160	3-6

Pretreatment

Remove heavy dirt adherent to the surfaces to be bonded (pipe end outside, socket inside). Then measure the fitting insertion depth (= bond length) and mark it on the pipe end so that the application of the required amount of adhesive and the complete insertion of the pipe can be checked.

Measure insertion depth!

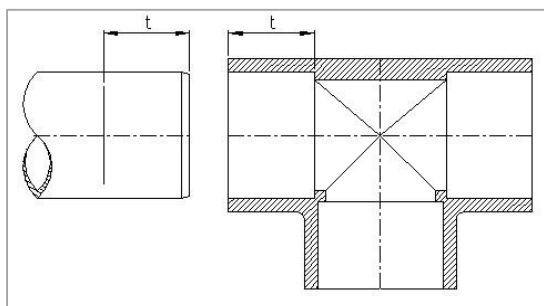


Figure 2: Insertion depth

Table 3: Insertion depth per pipe outer diameter

Pipe outer diameter Ø (mm)	16	20	25	32	40	50	63	75	90	110	140	160
Insertion depth t (mm)	14	16	19	22	26	31	38	44	51	61	76	86

Final cleaning is done using Tangit Cleaner PVC-U/C/ABS. Spray the cleaner onto white tissue paper and thoroughly clean the dry surfaces to be bonded so that they are free of dirt and grease. Use a new piece of tissue paper for each cleaning operation. The cleaned surfaces must be dry before applying the adhesive. Any ice must be removed by careful heating.

Application

Stir Tangit DTX well before use. The adhesive should flow slowly off a stick held at an angle, forming a trail. In an axial direction apply a uniform coat of adhesive - first to the inside of the socket, then to the pipe. Apply thinly inside the socket in order to avoid the detrimental formation of beads inside the pipe, but apply generously to the pipe end.

Tangit DTX is able to bridge gaps (caused by pipe tolerances) of up to +0.6 mm in compliance with EN 14814. But for the contact with aggressive media it is limited to diameter gap max. + 0.4 mm.



Table 4: Recommended brush sizes

d32	8mm round brush
d40 - d63	1" flat brush
d75 - d160	2" flat brush

Immediately insert the pipe into the socket to stop resp. to full depth, without twisting or jamming. Hold fast for several seconds until the adhesive begins to dry. Remove any excess adhesive with tissue paper immediately after joining. As the adhesive cures rapidly, the components must be completely joined within the open time. From d75 upwards, the adhesive should be applied to pipe and socket simultaneously by two persons.

The open time of Tangit DTX, i.e. the time from the start of adhesive application until joining the parts, depends on ambient temperature and/or film thickness of the applied adhesive. With a film thickness of 1 mm the open time of Tangit DTX is 1 minute at 20°C, with higher ambient temperatures the open time will decrease.

During the first 5 minutes after bonding, the pipes must not be moved. At temperatures below +10°C, this time must be extended to at least 15 minutes. The bonded pipes should be lowered into the trench after 10 to 12 hours. Wait 48 hours after the last bonding before filling the pipes or performing leak tests (up to a test pressure of 1.5 x PN). If the pipeline is to be charged with the operating pressure, a minimum waiting time of 1 hour per bar must be observed. If lines are not to be operated immediately, it is recommended to flush them thoroughly. Leave them filled with water and flush them periodical.

General Information

Before start of operation, pipe-lines must be carefully flushed in order to remove residual solvent vapours. Tangit DTX is ready for use and must under no circumstances be diluted. Tangit DTX and Tangit Cleaner affect PVC-U. Pipes and fittings should therefore not be exposed to spilled adhesive/cleaner. Tightly close containers no longer in use in order to avoid solvent evaporation and thickening. Remove the skin of dried-up adhesive. Strip off thickened adhesive adherent to the brush with dry tissue paper. Cleaned brushes must be dry prior to further use.

Installation

Installation at low temperatures requires utmost care. At temperatures below +5°C, pipes and fittings tend to be more vulnerable to impact (embrittlement). Long-term exposure to solvent vapours (as may occur during the drying phase when the pipeline is closed) may therefore result in damage to the system. Since Tangit PVC-U cures physically by evaporation, hardening may be slowed down considerably. Special installation techniques are therefore required at temperatures below +5°C. For this purpose, pipe ends and sockets to be bonded are warmed to +25 to +30°C by means

of a suitable hot-air blower (explosion-proof) and then bonding is done as described above. The finished joint must be kept at +25 to +30°C for approx. 10 minutes.

The installation of pressure pipes and fittings made of PVC-U requires expertise in the use of these materials. The instructions given here are therefore only meant to support well-trained staff in their work. Please make sure to observe the installation instructions of the pipe and fitting manufacturers as well as the respective guidelines and worksheets of the associations, e.g.

- DVS
- DVGW
- KRV installation instructions.

The bonded pipelines must be inspected in regular intervals. We recommend that a couple of transparent fittings are installed in the pipeline to facilitate inspection. Discoloration of the bonded joint will then indicate any damage to the system. Transparent fittings are produced e.g. by Georg Fischer Piping Systems Ltd. Schaffhausen/CH.

To ensure optimum fit (i.e. narrow gaps with sufficient workability), it is recommended to use a pipe / fitting system with matching dimensions, e.g. pipes for chemical applications made by Georg Fischer DEKA GmbH.

The quality of the joints directly depends on proper workmanship and on the matching dimensions of the pipes and fittings used.

When using Tangit DTX with PVC-C pipes, the operating temperature is limited to max. 60°C!

TECHNICAL DATA

Table 5: Technical data

Composition	Solvent-containing adhesive based on Tetrahydrofuran (THF stabilized)
Density	0.95 g/cm ³
Heat resistance	Corresponds to that of PVC-U
Open time	Approx. 1 minute
Application temperature	5°C - 35°C
Consumption	See table below
Final strength	48 hours
Shelf life	24 months

Consumption

For the production of one bonded joint the following **approximate** amounts of adhesive and cleaner are required:

Table 6: Consumption

Pipe dimension d (mm)	20	32	50	63	75	90	110	140	160
Tangit Adhesive (g)	3	5	9	15	20	36	60	90	120
Tangit Cleaner (ml)	3	5	9	11	13	14	17	21	25

Please note: The adhesive amounts indicated above are maximum values based on laboratory experience.

The actual consumption in a given application depends on working method, pipe gap and temperature.

LIMITATIONS

Storage

For practical reasons, Tangit should not be stored at temperatures below +5°C since this leads to a higher viscosity and thickening of the adhesive, thus affecting its workability. After conditioning at room temperature and thorough stirring, the temperature-induced viscosity increase and thickening is reduced again.

If stored at +20°C in original can, shelf life is 24 months. Use before date and batch number are indicated on the packaging.

HEALTH AND SAFETY

Before using the product please see related Material Safety Data Sheet.

Tangit adhesives and Tangit cleaner are flammable. Solvent vapours are heavier than air. They may accumulate at ground level and form explosive mixtures. Therefore ensure sufficient airing and ventilation during application and drying. No smoking and no welding in the working area and in the rooms adjacent to it! No open light or fire, avoid any sparking or static charge! Accumulated solvent vapours and explosive mixtures must be removed prior to welding. Fill the pipes with water, flush and purge them well. Do not close / seal the pipes while drying. Prolonged inhalation of solvent vapours may be injurious to health. In order to minimize exposure to solvent vapours, keep used tissue paper in closed containers (e.g. buckets with lids). As precaution, protective gloves should be worn to avoid contact to skin and maximum cleanliness should be observed (repeatedly wash hands during work and use a greasy skin cream or emulsion).



Link to MSDS database

In case of contact with the eyes, rinse thoroughly with water and obtain medical advice.



Immediately take off any clothing stained with adhesive.

Never use PVC piping systems with compressed air or gas!

For further information refer to the leaflets and accident prevention regulations of the employers' liability insurance associations and the safety data sheets. Detailed information on safety requirements and workplace hygiene in connection with Tangit can be found in the leaflet "Working with Tangit".

DISPOSAL

Product remains must be disposed of as special waste. Only recycle well-emptied containers with dried-up adhesive residues and free of solvent vapours. The respective codes of the European Waste Catalogue (EWC) can be enquired from the manufacturer.

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product.

Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

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