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**Revisions:**

Compared to VN 1576-2 (2014-02), the following changes have been made:

- a) Content and editorial revision, adaptation to new layout.
- b) Chap. 1, 2, 3, 4: Scope, area of application, purpose and normative references newly included.
- c) Chap. 6: Replacing Chapters 1.1.1 and 1.1.2. Anti-corrosion agents no longer explicitly mentioned, general data on the requisite properties only. Anti-corrosion agents classified into group 1 and group 2.
- d) Chap. 7: Preservation matrix revised: Transport type truck, rail and air amalgamated to land/air; transport type container deleted; adapted to the newly defined preservation methods.
- e) Chap. 8, 9: Preservation methods defined based on the roll cover design. K 6, K 7 and K 10 revised; K 8 and K 9 deleted; K 8a, K 8b, K 9a, K 9b, K 11, K 12 and K 13 newly included.

**1 Scope**

This standard applies across the group to the entire scope of Voith Paper and its subcontractors.

**2 Area of application**

This standard applies in particular to the preservation and storage of rolls for paper machines, coating machines, calenders and also winders.

**3 Purpose**

This standard defines measures for preservation and storage of rolls in order to prevent corrosive influences causing damage during transport and storage.

**4 Normative references**

VN 1576-1            Preservation and Storage  
                          Part 1: General preservation and storage

Unless stated otherwise, the most recent version of this standard shall apply.

**5 General**

All parts made of stainless materials (e.g. stainless steel, aluminum, bronze, plastic, etc.) are not preserved. For all preserved parts, a waterproof barrier layer must be used as separating layer from the wooden support. Uncoated paper or board must **not** be used because of possible moisture. Rapid temperature changes lead to damage or destruction of the roll cover.

**6 Anti-corrosion agents**

The anti-corrosion agents to be used are classified into two groups based on properties and use. Both groups are defined in VN 1576-1.

In addition, flexible lamella protective mats and insulating foam mats are used to preserve rolls.

**6.1 Use of flexible lamella protective mat**

Lay the lamella protective mat (impact protection) over the face length and fasten with tightening strap. Never attach directly to the coating. Tension the tightening strap only lightly.

**6.2 Use of insulating foam mat**

The cold/heat insulating mat must rest snugly over the face length and be bonded tightly at the points of impact (adhesive tape).

## 7 Preservation matrix

	Transport type		
	Land/Air	Sea	
Goods	Preservation method		Storage
Rolls with a shell from non-alloy or low-alloy steel, uncoated	K 6, K 7	K 7	B
Rolls with a shell from non-alloy or low-alloy steel, uncoated drilled/grooved	K 11	K 11	B
Rolls with a shell from non-alloy or low-alloy steel with cover (rubber, polyurethane, composite material, stainless steel cover)	K 8b, K 9b	K 9b	A
Rolls with chrome cover	K 8a, K 9a	K 9a	A
Rolls with cover (thermally sprayed coating)	K 10	K 10	A
Rolls with a shell from stainless steel, uncoated or with thermally sprayed coating or with honeycomb lattice or screen fabric	K 12	K 12	A
Rolls with a shell from stainless steel with cover (rubber, polyurethane)	K 13	K 13	A

## **8 Preservation for rolls with a shell from non-alloy or low-alloy steel**

### **8.1 Preservation method K 6: Preservation for uncoated and undrilled rolls**

- Coating with a group 1 anti-corrosion agent.
- Wrap roll shell with anti-corrosion paper (e.g. oiled paper or paraffin paper) overlapping and wrinkle-free.
- Wrap roll shell with reinforced paper, make paper webs overlap. The radial and axial butt joints must be completely (tightly) bonded with adhesive tape. Press end-face excess length onto roll end face and completely (tightly) bond with adhesive tape.
- All bright and unpainted surfaces of the roll must be preserved with a group 1 or group 2 anti-corrosion agent. The journals must be additionally wrapped with oiled paper or paraffin paper and then with plastic foil (e.g. flexible stretch film).
- Boreholes and tapped holes are preserved with a group 1 or group 2 anti-corrosion agent. If components are not packed further, the boreholes and tapped holes must be closed with, for example, plastic plugs (also on parts clad with stainless steel).
- For transport on pedestals, the face length must be additionally protected with a flexible lamella protective mat.

### **8.2 Preservation method K 7: Preservation for uncoated and undrilled rolls**

- Apply a group 1 or group 2 anti-corrosion agent to the roll shell.
- Wrap roll shell with anti-corrosion paper (e.g. oiled paper or paraffin paper) overlapping and wrinkle-free.
- Wrap roll shell with reinforced paper, make paper webs overlap. The radial and axial butt joints must be completely (tightly) bonded with adhesive tape. Press end-face excess length onto roll end face and completely (tightly) bond with adhesive tape.
- All bright and unpainted surfaces of the roll must be preserved with a group 1 or group 2 anti-corrosion agent.
- Boreholes and tapped holes are preserved with a group 1 or group 2 anti-corrosion agent. If components are not packed further, the boreholes and tapped holes must be closed with, for example, plastic plugs (also on parts clad with stainless steel).

### **8.3 Preservation method K 8a: Preservation for coated rolls – chrome**

- The chrome coating must not come into contact with anti-corrosion agent.
- Wrap roll shell with anti-corrosion paper BRANORost R overlapping and wrinkle-free.
- Wrap roll shell with reinforced paper, make paper webs overlap. The radial and axial butt joints must be completely (tightly) bonded with adhesive tape. Press end-face excess length onto roll end face and completely (tightly) bond with adhesive tape.
- If, in exceptional cases, transport occurs on pedestals, the roll shell must be additionally protected with a flexible lamella protective mat.
- All bright and unpainted surfaces of the roll must be preserved with a group 1 or group 2 anti-corrosion agent. The journals must be additionally wrapped with oiled paper or paraffin paper and then with plastic foil (e.g. flexible stretch film).
- Boreholes and tapped holes are preserved with a group 1 or group 2 anti-corrosion agent. If components are not packed further, the boreholes and tapped holes must be closed with, for example, plastic plugs (also on parts clad with stainless steel).

### **8.4 Preservation method K 8b: Preservation for coated rolls – rubber, polyurethane, composite material, stainless steel cover**

- The coating must not come into contact with anti-corrosion agent.
- Wrap roll shell with insulating foam mat (aluminum-coated) wrinkle-free, make webs overlap at least 30 cm. The radial and axial butt joints must be completely (tightly) bonded with adhesive tape. Press end-face excess length (approx. 30 cm) onto roll end face and completely (tightly) bond with adhesive tape.
- The roll shell must be additionally protected with a flexible lamella protective mat.
- All bright and unpainted surfaces of the roll must be preserved with a group 1 or group 2 anti-corrosion agent. The journals must be additionally wrapped with oiled paper or paraffin paper and then with plastic foil (e.g. flexible stretch film).

- Boreholes and tapped holes are preserved with a group 1 or group 2 anti-corrosion agent. If components are not packed further, the boreholes and tapped holes must be closed with, for example, plastic plugs (also on parts clad with stainless steel).

#### **8.5 Preservation method K 9a: Preservation for coated rolls – chrome**

- The chrome coating must not come into contact with anti-corrosion agent.
- Wrap roll shell with anti-corrosion paper BRANORost R overlapping and wrinkle-free.
- Wrap roll shell with reinforced paper, make paper webs overlap. The radial and axial butt joints must be completely (tightly) bonded with adhesive tape. Press end-face excess length onto roll end face and completely (tightly) bond with adhesive tape.
- If, in exceptional cases, transport occurs on pedestals, the roll shell must be additionally protected with a flexible lamella protective mat.
- All bright and unpainted surfaces of the roll must be preserved with a group 1 or group 2 anti-corrosion agent.
- Boreholes and tapped holes are preserved with a group 1 or group 2 anti-corrosion agent. If components are not packed further, the boreholes and tapped holes must be closed with, for example, plastic plugs (also on parts clad with stainless steel).

#### **8.6 Preservation method K 9b: Preservation for coated rolls – rubber, polyurethane, composite material, stainless steel cover**

- The coating must not come into contact with anti-corrosion agent.
- Wrap roll shell with insulating foam mat (aluminum-coated) wrinkle-free, make webs overlap at least 30 cm. The radial and axial butt joints must be completely (tightly) bonded with adhesive tape. Press end-face excess length (approx. 30 cm) onto roll end face and completely (tightly) bond with adhesive tape.
- The roll shell must be additionally protected with a flexible lamella protective mat.
- All bright and unpainted surfaces of the roll must be preserved with a group 1 or group 2 anti-corrosion agent.
- Boreholes and tapped holes are preserved with a group 1 or group 2 anti-corrosion agent. If components are not packed further, the boreholes and tapped holes must be closed with, for example, plastic plugs (also on parts clad with stainless steel).

#### **8.7 Preservation method K 10: Preservation for drilled, coated rolls – thermally sprayed coating**

- The coating must not come into contact with anti-corrosion agent.
- Wrap roll shell with packaging paper and board (corrugated board).
- Apply drying agent on the top half of the roll shell. Per m<sup>3</sup>, approx. 10 bags of drying agent (unit 8) are needed.
- Apply 10 bags of drying agent (unit 8) each on drive-side and front-side bearing assemblies.
- Shrink-wrap roll completely with aluminum compound foil (200 °C – 40 N/cm<sup>2</sup> - 2 s) and/or exhaust air.

#### **8.8 Preservation method K 11: Preservation for uncoated drilled/grooved rolls**

- Wrap roll shell with anti-corrosion paper BRANORost R overlapping and wrinkle-free.
- Apply drying agent on the top half of the roll shell. Per m<sup>3</sup>, approx. 10 bags of drying agent (unit 8) are needed.
- Apply 10 bags of drying agent (unit 8) each on drive-side and front-side bearing assemblies.
- Wrap roll completely with VCI foil. The butt joints must be tightly bonded with adhesive tape.

## 9 Preservation for rolls with a shell from stainless steel

### 9.1 Preservation method K 12: Preservation for uncoated rolls or with thermally sprayed coating or with honey-comb lattice/screen fabric

- Wrap roll shell with reinforced paper wrinkle-free, make webs overlap at least 30 cm. The radial and axial butt joints must be completely (tightly) bonded with adhesive tape. Press end-face excess length (approx. 30 cm) onto roll end face and completely (tightly) bond with adhesive tape.
- The roll shell must be additionally protected with a flexible lamella protective mat.
- All bright and unpainted surfaces of the roll must be preserved with a group 1 or group 2 anti-corrosion agent.
- Boreholes and tapped holes are preserved with a group 1 or group 2 anti-corrosion agent. If components are not packed further, the boreholes and tapped holes must be closed with, for example, plastic plugs (also on parts clad with stainless steel).

### 9.2 Preservation method K 13: Preservation for coated rolls – rubber, polyurethane, composite material

- The coating must not come into contact with anti-corrosion agent.
- Wrap roll shell with insulating foam mat (aluminum-coated) wrinkle-free, make webs overlap at least 30 cm. The radial and axial butt joints must be completely (tightly) bonded with adhesive tape. Press end-face excess length (approx. 30 cm) onto roll end face and completely (tightly) bond with adhesive tape.
- The roll shell must be additionally protected with a flexible lamella protective mat.
- All bright and unpainted surfaces of the roll must be preserved with a group 1 or group 2 anti-corrosion agent.
- Boreholes and tapped holes are preserved with a group 1 or group 2 anti-corrosion agent. If components are not packed further, the boreholes and tapped holes must be closed with, for example, plastic plugs (also on parts clad with stainless steel).

## 10 Storage

The storage conditions are identified by a single-digit characteristic letter according to VN 1576-1.

Table 1: Storage conditions

Characteristic letter	Storage	Roll type
A	Storage in tempered buildings (+10 °C to +35 °C).	Coated rolls
B	Storage in dry, unheated buildings.	Uncoated rolls, if A is not possible

The storage of rolls outdoors is strictly prohibited.