
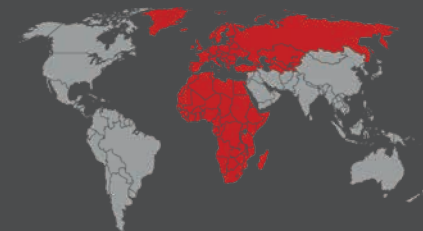




Portfolio Information

# Adhesive Portfolio for the Food and Consumer Goods Industry



Bonding Cartons, Cases, Trays

Beverage Carton Applications

Inline Labeling

Mandrel Wheel Packaging

Pallet Stabilisation

Our Word is Our Bond

**Jowat**  
Klebstoffe





## Leading-edge Adhesive Technology for the Food, Beverage and Consumer Goods Industries

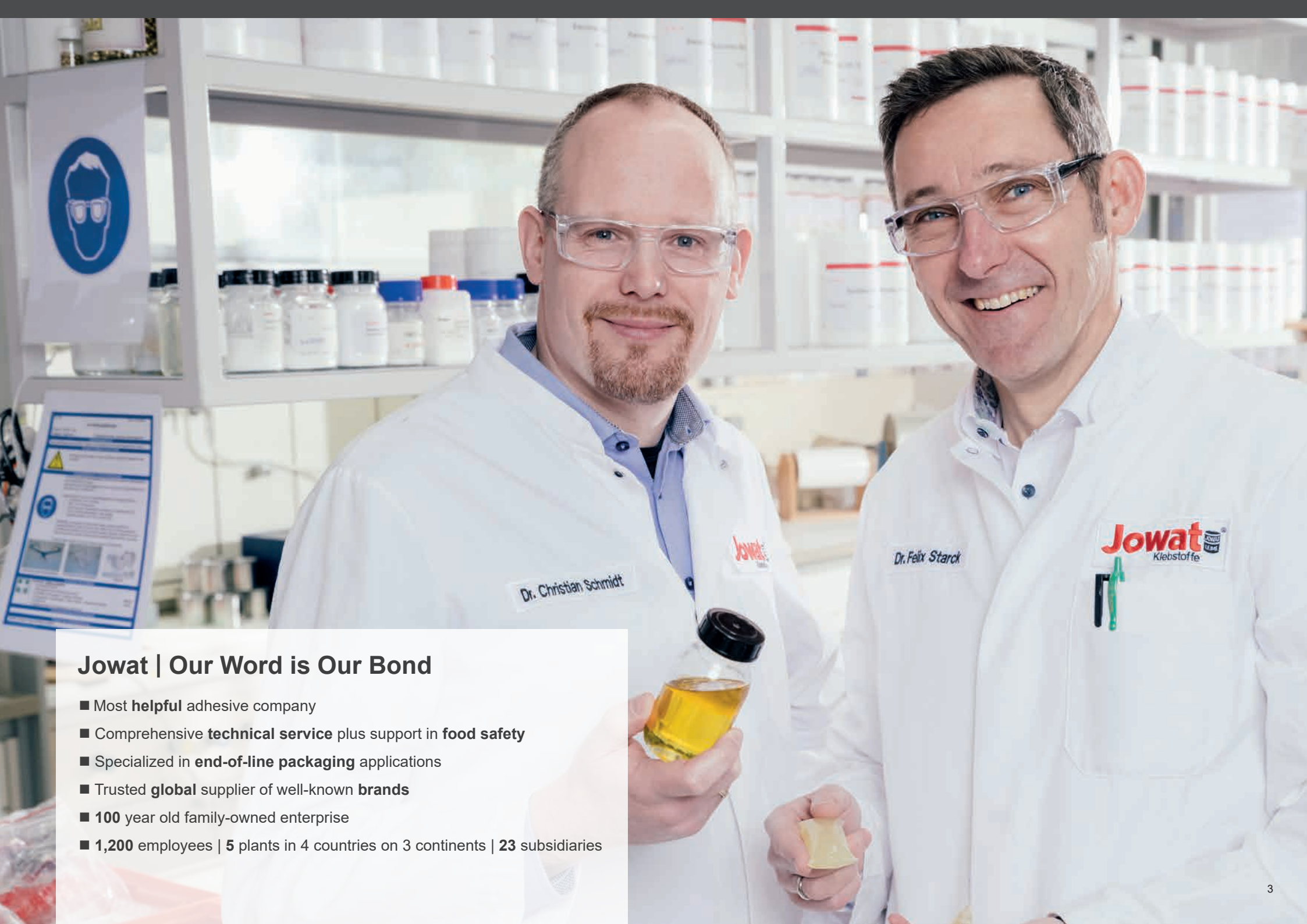
Be it primary or secondary packaging, from paper wraps to cartons, trays and cases, beverage cartons, labels or pallet securing – the requirements for packaging processes are rising rapidly. Clean, energy-efficient and sustainable solutions are increasingly demanded in the industry – including in the development and application of adhesives.

Modern **Jowat** adhesives play a major role in facilitating highly efficient processes as expected by processors. **Jowat** adhesives have been established for many years in the different packaging processes and are highly valued by customers due to major economic benefits, such as reduced application amounts, minimized maintenance and less down times. **Jowat-Toptherm®**, **Jowatherm®** and **Jowacoll®** adhesives show an excellent performance in very demanding processes mastering fastest line speeds, extreme temperatures or difficult surfaces.

About half of all packaging manufactured worldwide comes into contact with food. Food safety has therefore always been a major focus of Jowat – from using suitable raw materials, meeting strict guidelines, as well as supporting our customers to ensure food safety compliance. Jowat understands the challenges in the industry and provides the expertise necessary to meet the high requirements.

No matter what the requirements are in your packaging process, the modern adhesive products from **Jowat** provide a suitable solution for your application. Our permanent focus is to facilitate optimised manufacturing conditions and to meet the customer expectations in the best possible way.





## Jowat | Our Word is Our Bond

- Most **helpful** adhesive company
- Comprehensive **technical service** plus support in **food safety**
- Specialized in **end-of-line packaging** applications
- Trusted **global** supplier of well-known **brands**
- **100** year old family-owned enterprise
- **1,200** employees | **5** plants in 4 countries on 3 continents | **23** subsidiaries

## Bonding of Trays, Cartons and Cases

|   | EFFICIENT<br>ALL-ROUNDER                | HEAVY DUTY<br>GRADE                     | EXTREMELY<br>RESISTANT    | ENTRY-LEVEL               | LOW ENERGY<br>CONSUMPTION               | BIO-BASED &<br>CLEAN      |
|---|---|---|---------------------------|---------------------------|---|---------------------------|
|   | Jowat-Toptherm®<br>851.10               | Jowat-Toptherm®<br>851.15               | Jowat-Toptherm®<br>851.20 | Jowat-Toptherm®<br>852.00 | Jowat-Toptherm®<br>851.99               | Jowatherm® GROW<br>853.20 |
| Viscosity [mPas]                                | ~ 1,100<br>at 160 °C                    | ~ 1,850<br>at 160 °C                    | ~ 2,100<br>at 160 °C      | ~ 900<br>at 160 °C        | ~ 1,900<br>at 99 °C                     | ~ 1,300<br>at 140 °C      |
| Processing Temperature [°C]                     | 140 - 180                               | 140 - 180                               | 150 - 180                 | 140 - 170                 | 99 - 150                                | 120 - 150                 |
| Open Time [s]                                   | ~ 10                                    | ~ 10                                    | ~ 10                      | ~ 9                       | ~ 7                                     | ~ 4                       |
| Short Pressing Times &<br>High Restoring Forces | ●●○                                     | ●●●                                     | ●●●                       | ●●○                       | ●●○                                     | ●●○                       |
| Low Maintenance & Cleaning                      | ●●●                                     | ●●○                                     | ●●○                       | ●●○                       | ●●●                                     | ●●●                       |
| Demanding Surfaces                              | ●●●                                     | ●●○                                     | ●●○                       | ●●○                       | ●●○                                     | ●○○                       |
| Heat Resistance                                 | ●●○                                     | ●●●                                     | ●●●                       | ●●○                       | ●●○                                     | ●●○                       |
| Cold Resistance                                 | ●●●                                     | ●●○                                     | ●●○                       | ●●●                       | ●●○                                     | ●○○                       |
| Environmental Benefits                          | ●●○                                     | ●●○                                     | ●●○                       | ●●○                       | ●●●                                     | ●●●                       |
| Food Safety Compliance                          | EU 10/2011<br>FDA 175.105<br>MOAH free* | EU 10/2011<br>FDA 175.105<br>MOAH free* | EU 10/2011<br>FDA 175.105 | EU 10/2011<br>FDA 175.105 | EU 10/2011<br>FDA 175.105<br>MOAH free* | EU 10/2011<br>FDA 175.105 |

\* Below typical detection limits





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## Tipps & Tricks

### Generally, increasing the temperature of the adhesive also leads to

- Lower viscosity (as a general rule, increasing the temperature by 20 °C reduces the viscosity by 50 %).
- Longer setting time and open time.
- Reduced stringing.
- Positive effect on adhesion.
- Increased thermal stress.

### How to minimise stringing

- Use straight nozzles with single holes and a short capillary length.
- Reduce distance between applicator head and substrate to a minimum.
- Increase adhesive temperature.
- Choose bead length and positioning according to available surface.
- Prevent draught.

### Parameters to adapt the application amount

- Unit pressure (usually between 1.5 and 4.5 bar).
- Nozzle diameter (usually between Ø 0.31 and Ø 0.51 mm) and, if applicable, capillary length.
- Processing temperature and viscosity of the adhesive.
- The width of the compressed adhesive bead should not be less than 8 mm on corrugated cardboard packaging (corresponds to an application amount of approx. 1.5 g/m).

### Maintenance

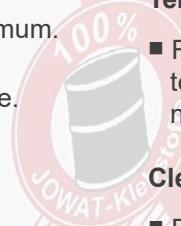
- Tear tests should be carried out in regular intervals to check the quality of the bond.
- The final strength of the bond should be tested again 24 hours after bonding.
- Check the adhesive amount and positioning of the adhesive bead in regular intervals.
- Store the adhesive in closed containers to prevent contaminations.
- Regularly check inline filters and equipment filters.

### Temperature setting

- For a gentle processing, we recommend to increase the adhesive temperature gradually by 5 °C from the tank to the hose and to the nozzle (typical settings: 150 °C – 155 °C – 160 °C).

### Cleaning

- Preliminary cleaning while hot by scraping with a spatula (made of wood or another soft material). Remove any residues when cold with Jowat® 402.40.



## Beverage Carton - Cap Bonding

|                              | Viscosity<br>[mPas]   | Processing<br>Temperature<br>[°C] | Application      | Heat<br>Resistance | Cold<br>Resistance | Low Main-<br>tenance &<br>Cleaning | Food Safety<br>Compliance            | Remarks                                    |
|------------------------------|-----------------------|-----------------------------------|------------------|--------------------|--------------------|------------------------------------|--------------------------------------|--|
| <b>Jowatherm®<br/>250.00</b> | ~ 18,500<br>at 190 °C | 180 - 210                         | Nozzle<br>Roller | ● ● ●              | ● ● ○              | ● ● ○                              | EU 10/2011<br>FDA 175.105<br>GB 9685 | Approved by Tetra Pak and<br>SIG Combibloc |
| <b>Jowatherm®<br/>250.80</b> | ~ 10,100<br>at 180 °C | 180 - 210                         | Nozzle           | ● ● ○              | ● ● ●              | ● ● ○                              | EU 10/2011<br>FDA 175.105<br>GB 9685 | Approved by<br>Tetra Pak                   |
| <b>Jowatherm®<br/>250.85</b> | ~ 2,000<br>at 180 °C  | 180 - 200                         | Nozzle           | ● ● ○              | ● ● ○              | ● ● ●                              | EU 10/2011<br>FDA 175.105<br>GB 9685 | low stringing                              |

## Beverage Carton - Straw Attachment

|                                   | Viscosity<br>[mPas]  | Processing<br>Temperature<br>[°C] | Setting<br>Speed | Heat<br>Resistance | Cold<br>Resistance | Low Main-<br>tenance &<br>Cleaning | Food Safety<br>Compliance            | Remarks                  |
|-----------------------------------|----------------------|-----------------------------------|------------------|--------------------|--------------------|------------------------------------|--------------------------------------|--------------------------|
| <b>Jowat-Toptherm®<br/>256.05</b> | ~ 1,460<br>at 160 °C | 140 - 170                         | ● ● ●            | ● ● ○              | ● ● ●              | ● ● ●                              | EU 10/2011<br>FDA 175.105<br>GB 9685 | Approved by<br>Tetra Pak |
| <b>Jowat-Toptherm®<br/>256.00</b> | ~ 1,460<br>at 160 °C | 140 - 170                         | ● ● ○            | ● ● ○              | ● ● ●              | ● ● ●                              | EU 10/2011<br>FDA 175.105            | Approved by<br>Tetra Pak |
| <b>Jowat-Toptherm®<br/>851.10</b> | ~ 1,100<br>at 160 °C | 140 - 180                         | ● ● ●            | ● ● ●              | ● ● ●              | ● ● ●                              | EU 10/2011<br>FDA 175.105            | -                        |

## Inline Labelling

|                           | Viscosity<br>[mPas] | Processing<br>Temperature<br>[°C] | Application      | Colour       | Heat<br>Resistance | Cold<br>Resistance | Low Main-<br>tenance &<br>Cleaning | Food Safety<br>Compliance | Remarks                                   |
|---------------------------|---------------------|-----------------------------------|------------------|--------------|--------------------|--------------------|------------------------------------|---------------------------|---|
| Jowat-Toptherm®<br>252.45 | ~ 850<br>at 160 °C  | 140 - 180                         | Nozzle<br>Roller | Light Yellow | ● ● ○              | ● ● ○              | ● ● ●                              | EU 10/2011<br>FDA 175.105 | Paper & Plastic<br>Labels<br>Low Staining |



## Mandrel Wheel Packaging

|                             | Viscosity<br>[mPas] | Solids content<br>[%] | pH Value | Base      | Demanding<br>Surfaces | Low Main-<br>tenance &<br>Cleaning | Food Safety<br>Compliance | Remarks   |
|-----------------------------|---------------------|-----------------------|----------|-----------|-----------------------|------------------------------------|---------------------------|---|
| <b>Jowacoll®<br/>707.41</b> | ~ 2,200             | ~ 50.0                | ~ 4.5    | PVAc      | ● ○ ○                 | ● ● ●                              | EU 10/2011<br>FDA 175.105 | for Packaging e.g. Coffee,<br>Sugar, Flour, Cereals |
| <b>Jowacoll®<br/>746.07</b> | ~ 2,150             | ~ 56.0                | ~ 7.0    | Copolymer | ● ● ●                 | ● ● ○                              | EU 10/2011<br>FDA 175.105 | for Packaging e.g. Coffee,<br>Sugar, Flour, Cereals |
| <b>Jowacoll®<br/>747.91</b> | ~ 2,200             | ~ 56.0                | ~ 4.0    | Copolymer | ● ● ●                 | ● ● ○                              | FDA 175.105               | for Packaging e.g. Coffee                           |

## Pallet Stabilization

|                                   | Viscosity<br>[mPas]   | Processing<br>Temperature<br>[°C] | Application         | Colour               | Surface<br>Tack | Low Main-<br>tenance &<br>Cleaning | Supply Form | Remarks      |
|-----------------------------------|-----------------------|-----------------------------------|---------------------|----------------------|-----------------|------------------------------------|-------------|--------------|
| <b>Jowat-Toptherm®<br/>256.00</b> | ~ 1,460<br>at 160 °C  | 140 - 170                         | Bead<br>Swirl Spray | White<br>Translucent | ● ○ ○           | ● ● ●                              | Granules    | Dull Surface |
| <b>Jowatherm®<br/>253.90</b>      | ~ 1,210<br>at 160 °C  | 140 - 160                         | Bead<br>Swirl Spray | Yellow               | ● ○ ○           | ● ○ ○                              | Granules    | Dull Surface |
| <b>Jowat-Toptherm®<br/>252.45</b> | ~ 850<br>at 160 °C    | 140 - 180                         | Bead<br>Swirl Spray | Light Yellow         | ● ● ○           | ● ● ○                              | Pillow      | -            |
| <b>Jowatherm®<br/>254.20</b>      | ~ 12,500<br>at 160 °C | 150 - 170                         | Swirl Spray         | White<br>Translucent | ● ● ●           | ● ○ ○                              | Block       | Peelable     |





## Pallet Stabilisation

Adhesives can be applied directly to the package or on slip sheets preventing the load from slipping during transport:

- Safe and stable pallet units
- Highly cost-efficient solution
- Significant reduction of stretch film
- Less plastic
- Less waste and recycling cost
- Increased line efficiency
- No concealing of barcodes or graphics



# Jowat - Our Word is Our Bond

Jowat SE with headquarters in Detmold is one of the world's leading suppliers of industrial adhesives. These are mainly used in woodworking and furniture manufacture, in the paper and packaging industry, for graphic arts, in the textile, automotive as well as in the electrical industry. The company was founded in 1919 and has manufacturing sites in Germany in Detmold and Elsteraue, plus three other producing subsidiaries, Jowat

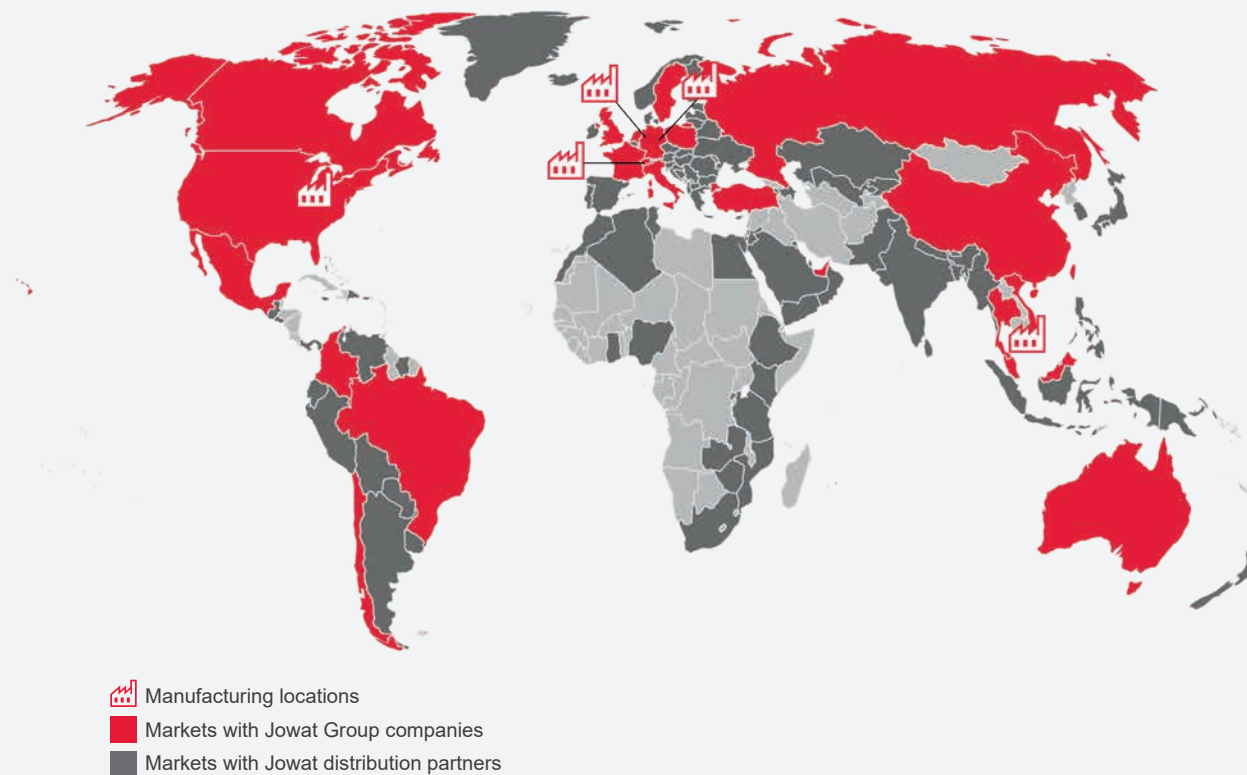
Corporation in the USA, Jowat Swiss AG, and Jowat Manufacturing in Malaysia. The supplier of all adhesive groups is manufacturing over 100,000 tonnes of adhesives per year, with about 1,200 employees. A global sales structure with 23 subsidiaries plus solution partners is guaranteeing local service with close customer contact.





# Have we sparked your interest?

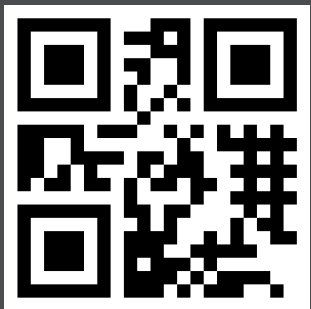
As an active innovation partner, Jowat supports processors in the food and consumer goods industry around the world in meeting the expectations of their customers. As one of the globally leading adhesive specialists with many decades of experience, we have a deep understanding of the different challenges in the packaging processes of fast-moving consumer goods – from ever-shorter cycle times, increasingly demanding surfaces or rising requirements regarding process efficiency and sustainability of the packaging.



We are part of the entire manufacturing chain and provide a comprehensive advisory service and competent know-how: from the constant search for and testing of new, sustainable raw materials to the development of innovative adhesive products in close cooperation with subsuppliers and processors within the framework of the technical advisory service, to individual process analyses. For many years, Jowat has played a major role in safeguarding success and protecting investments by delivering adhesive solutions for modern packaging processes to optimise products and processes.

Have we sparked your interest? Contact us!  
We look forward to working together.

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 variety of different applications, substrates, and processing methods that are 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 in normal processing conditions, and appropriate fit-for-purpose testing are absolutely necessary. For the specifications and for further information, please refer to the latest technical data sheets.



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