

Adhesives for Cold-temperature Labelling



When planning a labelling application involving cold temperatures, care is needed to ensure that labels adhere successfully during application, and also that they remain in place during the entire product lifecycle. The range of different application conditions that need to be considered includes the minimum application temperature, the service temperature, the surface to be labelled, and any add-on functionality or compliance needed (e.g. wash-off or compostable labels).

The choice of cold-use adhesive is critically important for cold-temperature labelling. The application may involve anything from food in the freezer or chiller cabinet, to pharma plasma or blood bags labelling, through to outdoor labels in severe weather conditions (e.g. container labelling, drum labelling and oil can labelling). The best adhesive will depend on the precise circumstances.

A product can be labelled in ambient (room temperature) conditions and then stored in a freezer, or vice versa. In such cases, it is therefore critical to look at **minimum application temperature** and also **service temperature**.

- ▶ **Minimum application temperature** is the lowest temperature recommended during labelling.
- ▶ **Service temperature** is the range of recommended temperatures for storing a label that has already been applied to a surface. The label will remain on the packaging and function correctly while kept within this temperature range.

Most of our adhesives are designed for application in ambient (+5°C) conditions. We also offer a range of adhesives for more challenging conditions: deep-freeze (up to -20°C); and chilled (between 0 to +8°C, including the challenging +4°C point). The service temperature for adhesives generally lies within the range -40°C to +80°C.

The table below will help you to select a cold use adhesive for application in low-temperature conditions such as freezers or cold weather. It shows the initial adhesion (tack) rating at different minimum application temperatures:

- = acceptable
- = best at these specific minimum application temperatures

Disclaimer: Testing was conducted using an HDPE surface, according to FTM9. The ratings (•) provide directional indication of adhesive performance and should not be interpreted as a product footprint data. We recommend testing a complete label construction for your specific application upfront, to ensure the desired level of adhesion during labelling.

Adhesive behaviour during labelling
(WITHIN TEMPERATURE RANGE +4°C TO -20°C)

Application	Adhesive	Coating Technology	4°C	-5°C	-10°C	-15°C	-20°C
General (IN COMBINATION WITH PAPER LABELS)	S2550	Emulsion Acrylic	•••	•			
	S2045N	Rubber-based Hotmelt	••••	••	•		
	S2060N	Rubber-based Hotmelt	•••••	••	•		
	S2800	Emulsion Acrylic	••	••	••	•	
	S2065N	Rubber-based Hotmelt	••••	••	•		
	C2040	Emulsion Acrylic	•••	•••	•••	••	•
	C2075N	Rubber-based Hotmelt	••••	•••	•••	•••	••
General (IN COMBINATION WITH FILM LABELS)	S2045C	Rubber-based Hotmelt	•••	•			
	S2045N	Rubber-based Hotmelt	••••	••	•		
Wine & Spirits & Beverage	S2047N	Rubber-based Hotmelt	•••••	•••	•		
Petrochemical & Industrial	D170N	Rubber-based Hotmelt	••••	•			
	S2085	Rubber-based Hotmelt	•••••	••			
Pharma*	S2045NP	Rubber-based Hotmelt	••••	••	•		
	S2060NP	Rubber-based Hotmelt	•••••	••	•		
	C2020P	Emulsion Acrylic	•••	••	•		
	S451	Rubber-based Solvent	•••••	••			
Very rough surface labelling	F1	Rubber-based Hotmelt	•••••	••••	••	•	
	TS8000	Rubber-based Hotmelt	•••••	••			
	TS79	Rubber-based Hotmelt	•••••	••			

* Pharma cryogenic adhesives are designed for labelling at room temperature; with subsequent storage at -196°C. More information on low temperature pharmaceutical labelling can be found [here](#).

For more information on technical performance and printing recommendations, please refer to the respective datasheets. Please note that the Avery Dennison product range and service offering can be subject to changes. For an accurate overview, please check our website label.averydennison.eu or contact your local Avery Dennison sales representative.

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