

EBOOK / 2026 EDITION

Beyond the surface: engineering the right label for your brand.

Ten common label materials, the adhesives and inks that suit them, and where each one fits.

EDITION

2026

CHAPTERS

Four

MATERIALS

Ten profiled

CONTENTS

In this eBook

A practical guide for anyone who specifies labels: how a label is built, ten common materials on paper and film, and side by side guides to adhesives, inks and industries.

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INTRODUCTION

A label is only as good as the conditions it survives

This guide profiles ten common label materials and shows what each one needs from its adhesive and its ink.

ProVison Labels by Ahearn & Soper Inc. builds customised labels that carry your brand and stand up to the place they work: a freezer, a drum shipped by sea, a circuit board in a solder oven or a busy shipping dock.

With 50 years in barcode and identification, our label engineers help you choose the construction before you commit. For each material you will find its properties, the inks and adhesives that suit it, environmental considerations and the industries where it fits.

When you have a shortlist, we can supply sample rolls to run on your own line.

HOW TO READ THIS GUIDE

Codes, ratings and marks

01

Adhesive codes

H hotmelt, **HH** heavy hotmelt, **E** emulsion acrylic, **S** solvent acrylic and **R** removable. Each is described in the adhesive guide in chapter 4.

02

Ink and adhesive ratings

Excellent, Good, Limited and Not recommended are ProVison Labels guidance. Dye and pigment ratings assume an inkjet coated grade. **Ask us:** no published source settles it yet.

03

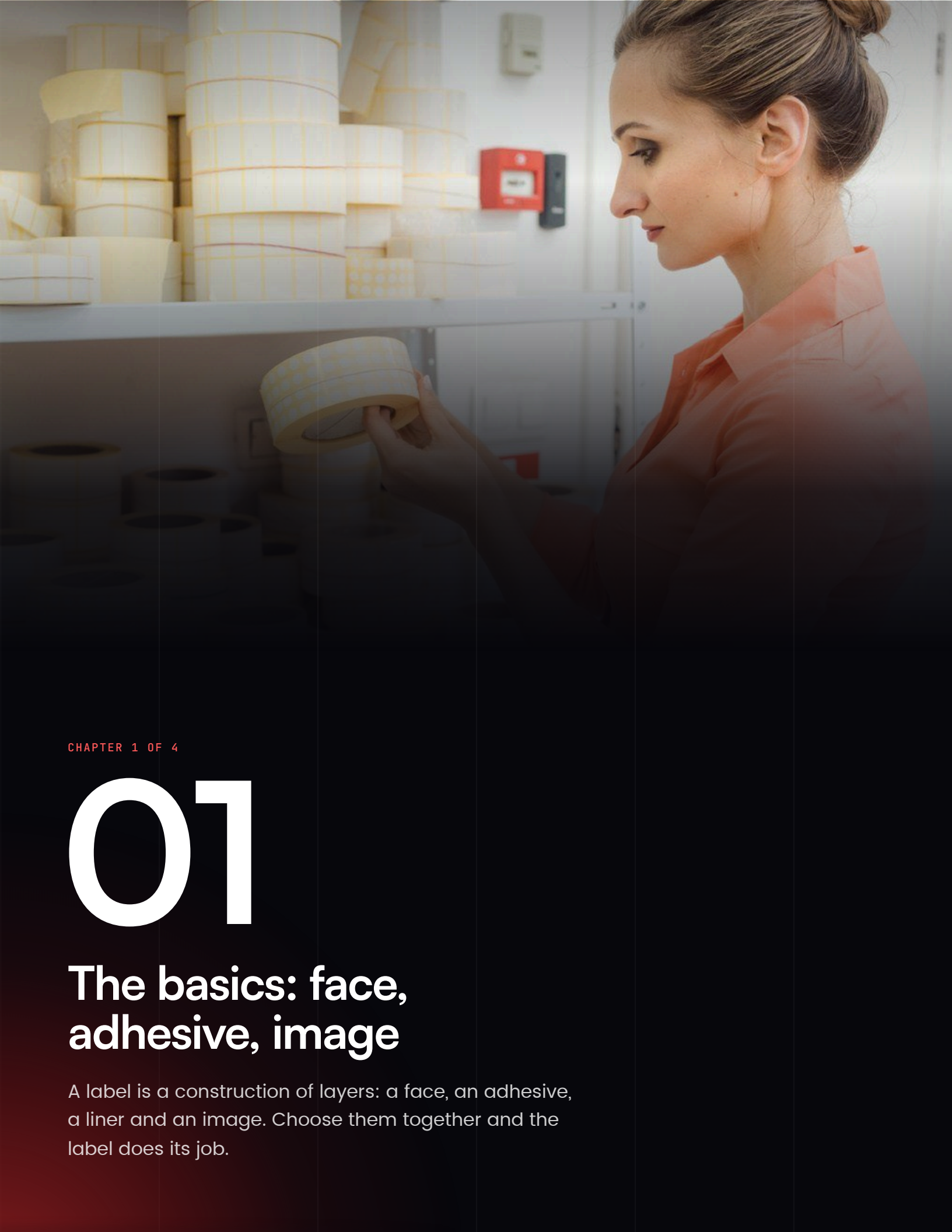
Industry fit

Best fit: a first choice for that industry. **Good fit:** works well, with the conditions noted on the page. No mark means not rated.

04

The twelve industries

Medical and pharmaceutical; hardware; automotive; GHS drum; horticultural; industrial; drinks and frozen foods; cosmetics, health and beauty; logistics and general purpose; chemical and solvents; cannabis; essential oils.



CHAPTER 1 OF 4

01

The basics: face, adhesive, image

A label is a construction of layers: a face, an adhesive, a liner and an image. Choose them together and the label does its job.

CONSTRUCTION

Four layers in every label

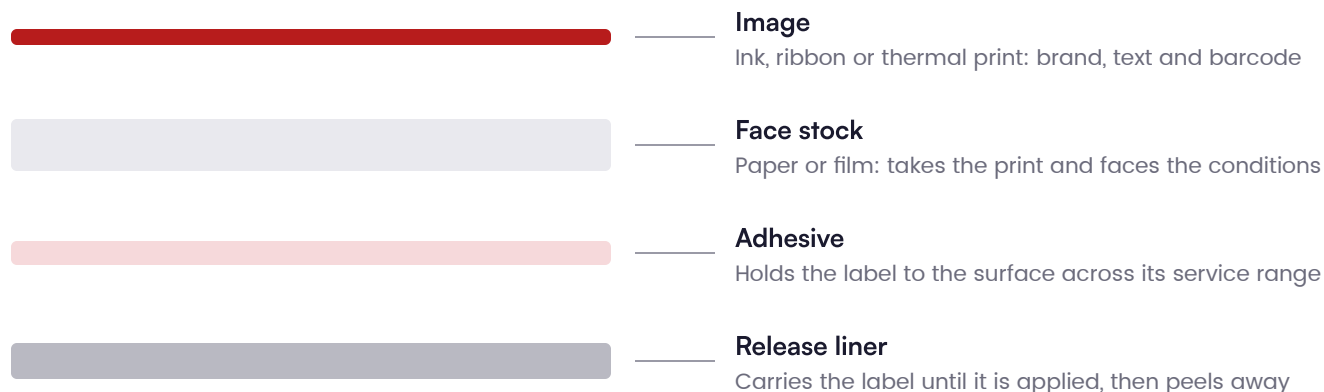


FIGURE 1. THE LAYERS OF A PRESSURE SENSITIVE LABEL AS NAMED IN THIS CHAPTER, NOT TO SCALE.

IMAGING

Four ways to put an image on a label

01

Dye inks

Inkjet inks with the brightest range of colour. Preferred for products used within a year; daily direct sun can start to fade them within months.

02

Pigment inks

Inkjet inks with stronger UV resistance and slightly less vivid colour. Chosen for GHS labels, tags and bin labels, and for longer outdoor life.

03

Press inks

Applied from plates on a printing press, most often flexographic. Water based, UV and LED curable systems print on paper and film. We use them to pre-print brand graphics.

04

Thermal transfer ribbon

A heated printhead transfers ink from a ribbon to the label for durable, long lasting images. Wax, wax resin and full resin grades are matched to the face.

Direct thermal labels need no ink or ribbon (material 03). Sources: Primera; Label and Narrow Web; Avery Products.

ADHESIVE TEMPERATURES

Two temperatures decide whether a label stays on

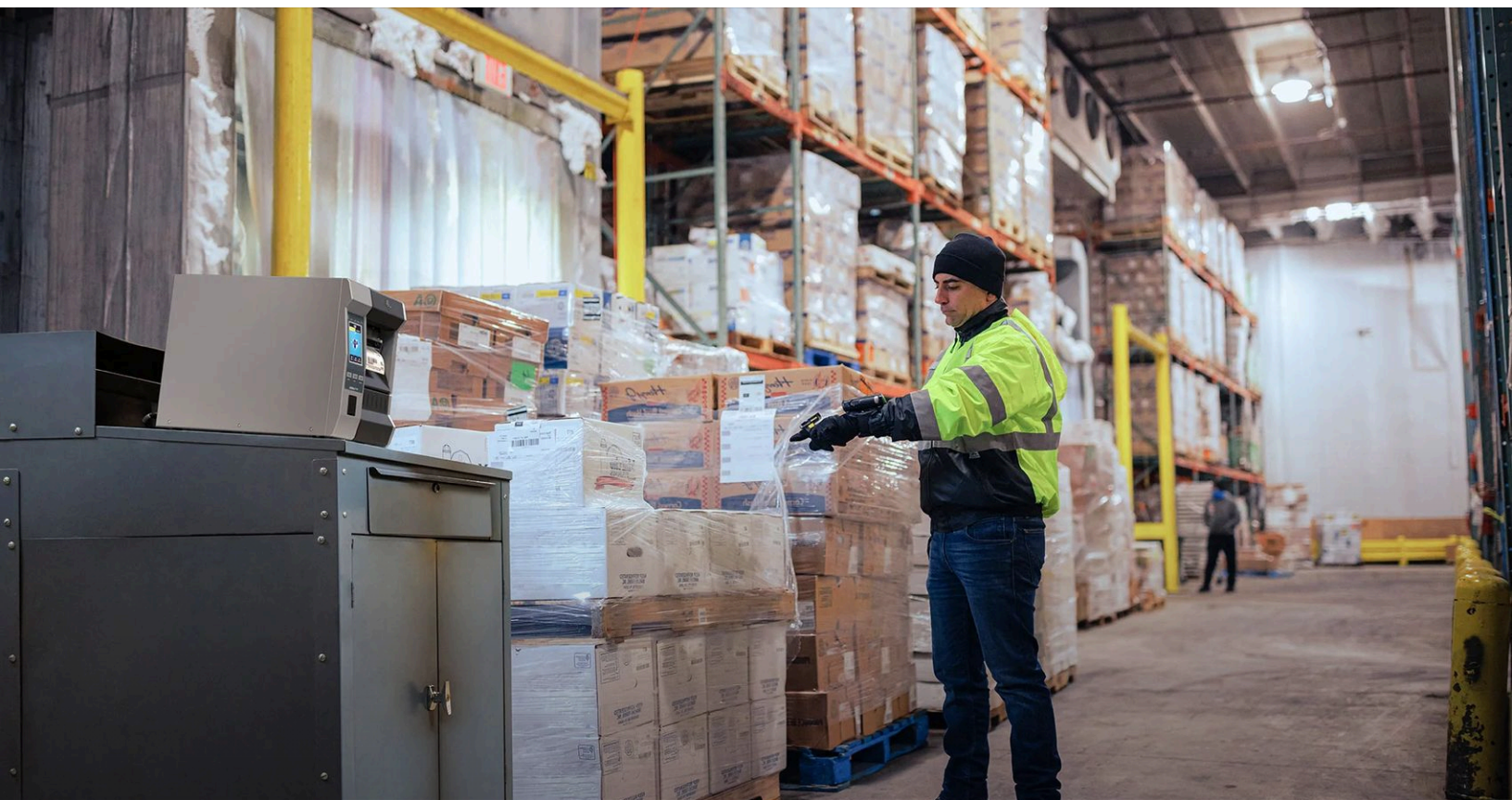
Every adhesive has a minimum application temperature and a service range. They are not the same number.

The minimum application temperature is the lowest temperature recommended during labelling. The service range is the span a label can be kept in once it is applied.

A product labelled warm and then frozen needs a wide service range. A product labelled inside a cold room also needs a low application temperature. Most general purpose adhesives are designed to be applied at about +5°C.

IN THIS GUIDE

Temperatures are shown as a typical service range from published data sheets. The data sheet for your exact construction always governs.





CHAPTER 2 OF 4

02

Paper materials

Paper takes print well and suits dry, indoor and short life labels. Coatings, thermal layers and cold grade adhesives widen what it can do.

MATERIAL 01

Matte paper

Coated and uncoated paper with a traditional, non reflective look, good smudge resistance and excellent printability, for labels kept away from moisture.

- **Inks:** dye and pigment excellent on an inkjet coated grade; thermal transfer ribbon excellent; press inks, ask us
- **Adhesives:** E excellent for standard applications; H good for quick initial tack; R for temporary applications
- **Environment:** made from renewable wood fibre; recycling depends on the adhesive, liner and contamination.

Best fit: logistics and general purpose. **Good fit:** hardware; automotive.



PAPER LABELS SUIT DRY, INDOOR AND SHIPPING USES.

MATERIAL 02

High gloss paper

A specially formulated gloss paper for full colour graphics printed with variable information. Excellent print quality and good moisture resistance. The gloss face carries full colour artwork alongside lot codes, dates and barcodes.

- **Inks:** dye excellent; pigment excellent; press inks excellent; thermal transfer ribbon good
- **Adhesives:** H good for standard applications; E limited suitability; R available for temporary applications
- **Environment:** made from renewable fibre. The gloss coating may affect compostability, so ask for the maker's statement before you make a claim.

Best fit: cosmetics, health and beauty; logistics and general purpose. **Good fit:** cannabis; drinks and frozen foods with a freezer grade adhesive.

MATERIAL 03

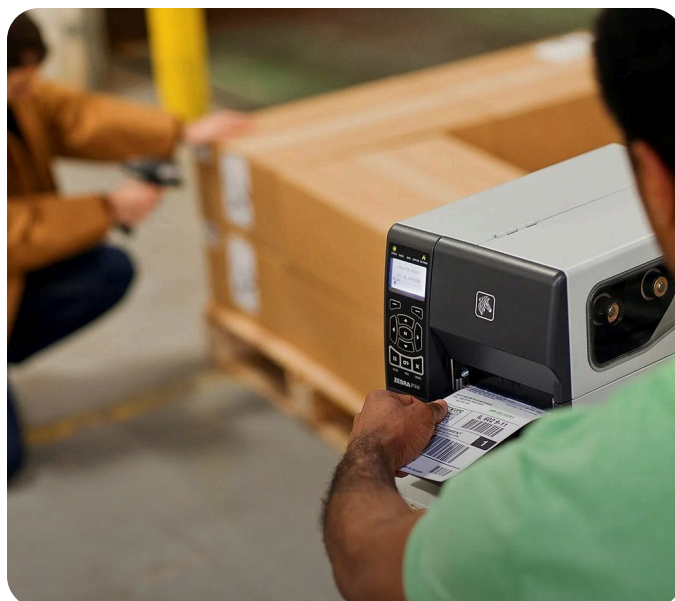
Direct thermal top coated paper

A paper with a heat sensitive coating that darkens under the printhead, so it needs no ink, toner or ribbon. The top coat protects the thermal layer. Heat and light darken it over time, so it suits short term labels.

- **Inks:** none needed for the image; press inks for pre-print only, as alcohol or solvent inks can discolour the coating
- **Adhesives:** permanent acrylic on one maker's stock, -20°C to +100°C, applied from 5°C
- **Environment:** no ribbon to buy or dispose of. Keep stock out of direct sun and above 50°C.

Best fit: logistics and general purpose; drinks and frozen foods.

Good fit: medical and pharmaceutical.



SHIPPING LABELS ARE A TYPICAL DIRECT THERMAL USE.

MATERIAL 04

Freezer grade paper

A paper construction built to go onto cold, damp packaging and stay there. What makes it freezer grade is mostly the adhesive. Wet strength paper helps the face survive condensation and thaw.

- **Inks:** thermal transfer ribbon good for cold and freezer use; direct thermal face available; dye, pigment and press inks, ask us
- **Adhesives:** H, one frozen food grade serves -40°C to +50°C; all temperature acrylic, applied down to about -29°C; general purpose, not for cold use
- **Environment:** a label that falls off a frozen case leaves an unidentified product. Judge the construction on staying put and staying readable.

Best fit: drinks and frozen foods. **Good fit:** medical and pharmaceutical; logistics and general purpose.



CHAPTER 3 OF 4

03

Film and specialty materials

Synthetic faces resist water, tearing and chemicals. Specialty films go further: seawater, solder heat and tamper evidence.

MATERIAL 05

Matte polypropylene

A non reflective synthetic with excellent water and tear resistance. A sophisticated matte finish that reduces glare while keeping good printability. Resists water and tearing where paper would fail.

- **Inks:** dye good, on an inkjet coated grade; pigment excellent; press inks excellent; thermal transfer ribbon excellent
- **Adhesives:** E excellent for long term applications; H good for quick initial tack; R available for temporary applications
- **Environment:** polypropylene carries resin identification code 5, which names the plastic but is not a recycling claim. Durability means fewer replacement labels.

Best fit: drinks and frozen foods; chemical and solvents; industrial; hardware. **Good fit:** essential oils; horticultural; GHS drum (domestic, non marine shipments).

MATERIAL 06

Gloss polypropylene

A versatile synthetic with a smooth, shiny finish that lifts colour. Excellent water resistance and durability, with good tear resistance and flexibility for squeezed and curved containers.

- **Inks:** dye good, may need an inkjet coated grade; pigment good; press inks excellent; thermal transfer ribbon excellent
- **Adhesives:** H excellent for quick initial tack; E recommended for long term applications; R available for temporary applications
- **Environment:** resin identification code 5 names the plastic; it is not a recycling claim. Ask for the maker's recyclability statement if you need one.

Best fit: drinks and frozen foods; cosmetics, health and beauty; medical and pharmaceutical. **Good fit:** logistics and general purpose.

MATERIAL 07

GHS label stock, BS 5609 certified

A synthetic stock for hazardous goods shipped by sea. BS 5609 section 2 certifies the facestock and adhesive after three months immersed in seawater. Section 3 certifies the finished printed label, including its inks, ribbons and print system.

- **Inks:** pigment inks and ribbons excellent with a section 3 certified system; press inks with certified systems only; dye inks not recommended
- **Adhesives:** S, the primary type, for water and chemical resistance
- **Environment:** not designed to biodegrade: its job is to keep hazard information readable.

Best fit: chemical and solvents; GHS drum; medical and pharmaceutical; cannabis; essential oils.



EPSON STATES THAT COLORWORKS PRINTERS WITH PIGMENT INK AND SELECT MEDIA ARE BS 5609 CERTIFIED.

MATERIAL 08

White, silver or clear polyester

Gloss PET for labels that must stay sharp in harsh conditions. Excellent durability, chemical resistance and dimensional stability. Clear PET gives a no label look on glass and clear containers.

- **Inks:** dye and pigment good, on a coated grade; press inks excellent; thermal transfer ribbon excellent
- **Adhesives:** S best for chemical resistance; E good for general applications; R available for temporary applications
- **Environment:** PET carries resin identification code 1, which names the plastic but is not a recycling claim. Durability means fewer replacement labels.

Best fit: drinks and frozen foods; cosmetics, health and beauty; chemical and solvents; medical and pharmaceutical.

MATERIAL 09

Polyimide

A high temperature film for labels that go through electronics assembly, from wave soldering to reflow.

Polyimide label materials tolerate peak soldering temperatures up to 300°C and resist circuit board cleaning agents. One maker's grade showed no significant visual change after 30 seconds at 277°C.

- **Inks:** thermal transfer ribbon excellent, with a resin ribbon on the topcoated grade; dye, pigment and press inks, ask us
- **Adhesive:** a high temperature acrylic, up to 232°C short term on one maker's grade; codes H to R are not rated for this heat
- **Environment:** built for heat; no recycling claim is made

Best fit: industrial; automotive. **Good fit:** medical and pharmaceutical (medical devices only).

MATERIAL 10

Destructible vinyl

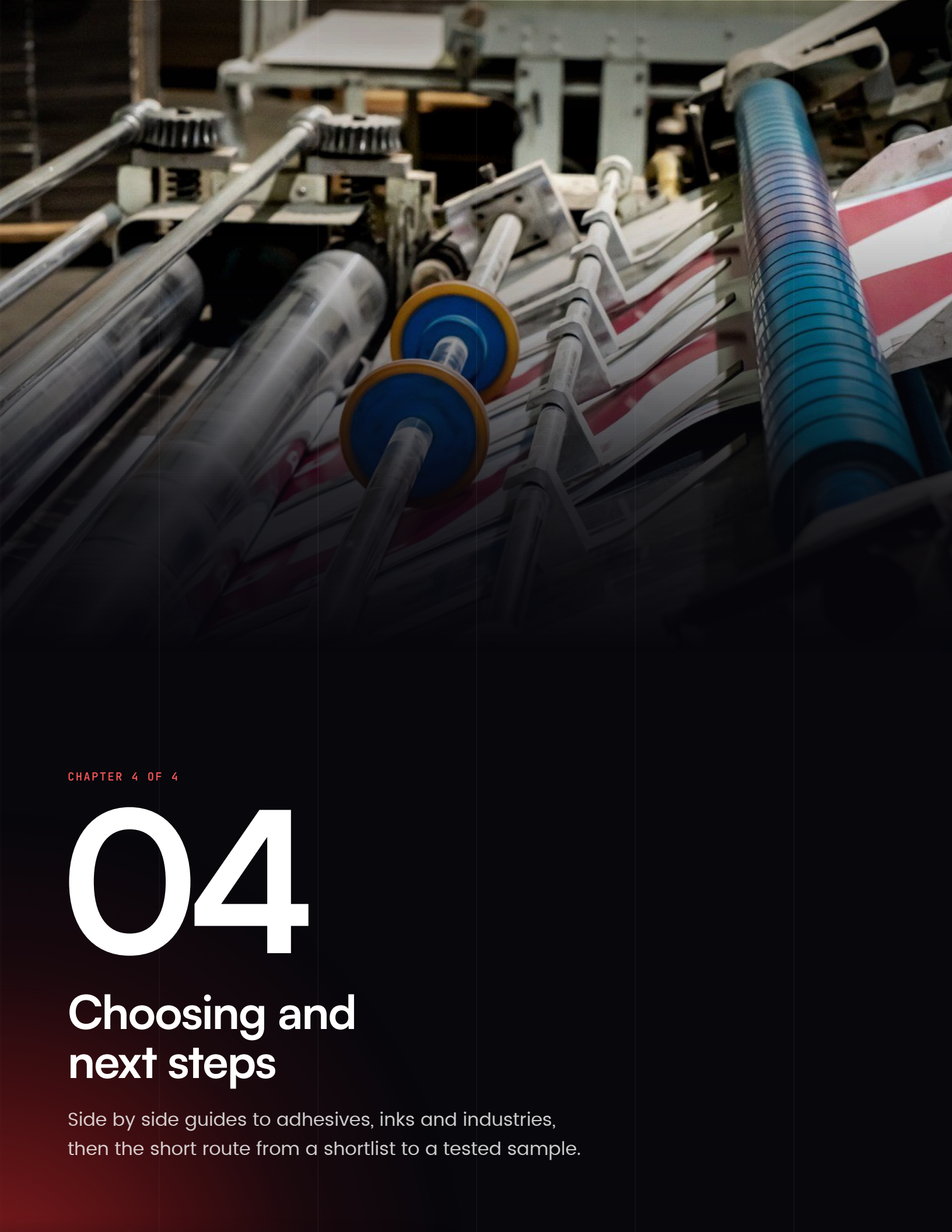
A tamper evident vinyl whose face tears when someone tries to peel it, so removal cannot go unnoticed. It only destructs when well bonded, so clean the surface and wait 24 hours before harsh use.

- **Inks:** thermal transfer ribbon good, test your own ribbon; dye, pigment and press inks, ask us
- **Adhesives:** permanent acrylic on one maker's grade, -40°C to 149°C, applied from 10°C
- **Environment:** withstands water, humidity and some chemicals; cannot be reused.

Best fit: industrial. **Good fit:** hardware; logistics and general purpose.



ASSET AND CALIBRATION LABELS ARE TYPICAL USES.



CHAPTER 4 OF 4

04

Choosing and next steps

Side by side guides to adhesives, inks and industries,
then the short route from a shortlist to a tested sample.

ADHESIVE GUIDE

Five adhesive families at a glance

TABLE 1. ADHESIVE FAMILIES AND TYPICAL SERVICE RANGES

ADHESIVE	CHARACTERISTICS	BEST FOR	TYPICAL SERVICE RANGE
Hotmelt (H)	Rubber based; strong tack on the widest range of surfaces	Corrugated, quick application, chilled and frozen packs	-40°C to +70°C
Heavy hotmelt (HH)	Very soft hotmelt rubber that flows into rough surfaces	Crates, sacks, textured and uneven surfaces	-40°C to +50°C
Emulsion acrylic (E)	Water based acrylic; suits high speed conversion and food contact	General purpose and long term labels	-20°C to +80°C; wider grades -50°C to +120°C
Solvent acrylic (S)	Exceptional water, heat and chemical resistance	Chemicals, outdoor use, sterilisation	-40°C to +90°C; some grades to +150°C
Removable (R)	Holds without edge lifting, then peels off without damage	Temporary applications	-30°C to +80°C; some grades -40°C to +100°C

Ranges vary by product; check the data sheet of your construction. Sources: Avery Dennison adhesive technologies guide (2020); Technicote adhesive guide (2023).

ADHESIVE TEMPERATURES

Where each adhesive family holds

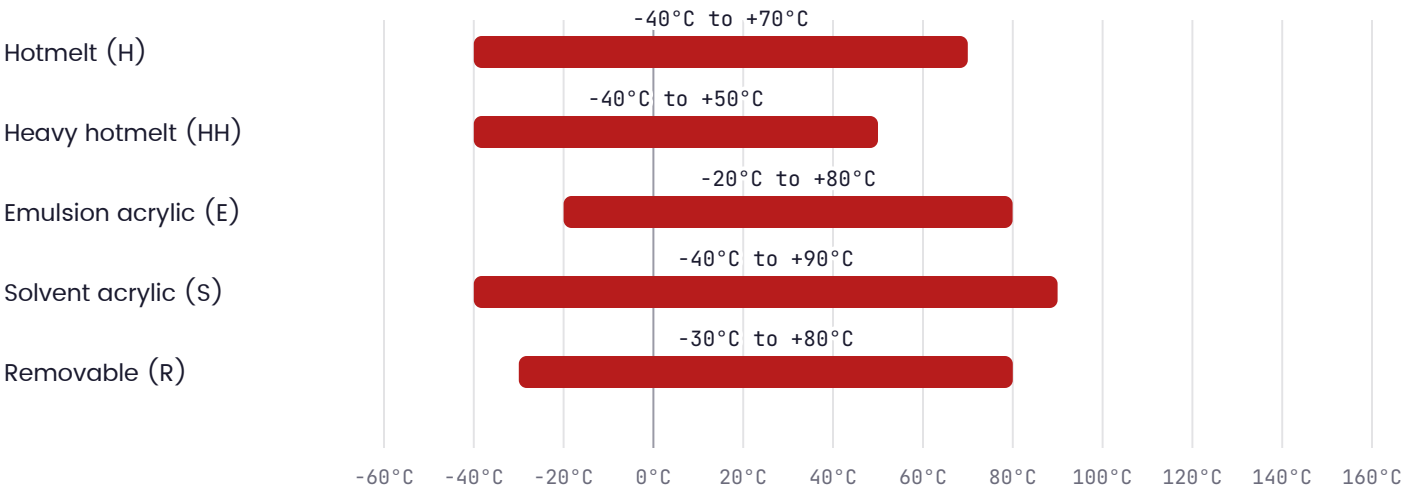


FIGURE 2. TYPICAL GRADES ONLY. WIDER GRADES: EMULSION ACRYLIC -50°C TO +120°C, SOLVENT ACRYLIC TO +150°C, REMOVABLE -40°C TO +100°C. SOURCE: AVERY DENNISON ADHESIVE TECHNOLOGIES TECHNICAL GUIDE (2020), AS IN TABLE 1. CHECK THE DATA SHEET OF YOUR CONSTRUCTION.

BEFORE YOU CHOOSE

Your label is often the first part of your brand a customer touches. Choose its material as carefully as its design.

Three ink types compared

TABLE 2. INK TYPES COMPARED

	DYE INKS	PIGMENT INKS	PRESS INKS
Characteristics	Brightest colour range	Strong UV resistance	Printed from plates; high, adjustable colour strength
Best for	Consumables used within a year, indoors	Outdoor use, moisture, GHS labels, tags	Pre-printed brand graphics on paper and film
Limitations	Can fade in months in daily sun; less water resistant than pigment	Slightly less vivid than dye	Fixed image; lot codes and dates go in a blank data zone printed later
Needs	An inkjet coated stock	An inkjet coated stock	Overlamine or varnish for durable labels; migration limits for food packs

Sources: Primera LX4000 ink guidance; Label and Narrow Web, flexo inks; Flexographic Technical Association; ProVision Labels.

Which material fits which industry

TABLE 3. INDUSTRY FIT, PART 1. ● BEST FIT, ○ GOOD FIT, BLANK: NOT RATED

MATERIAL	MEDICAL AND PHARMACEUTICAL	HARDWARE	AUTOMOTIVE	GHS DRUM	HORTICULTURAL	INDUSTRIAL
Matte paper		○ Good	○ Good			
High gloss paper						
Direct thermal	○ Good					
Freezer grade	○ Good					
Matte polypropylene		● Best		○ Good	○ Good	● Best
Gloss polypropylene	● Best					
GHS stock, BS 5609	● Best			● Best		
Polyester	● Best					
Polyimide	○ Good		● Best			● Best
Destructible vinyl		○ Good				● Best

Industry fit, continued

TABLE 4. INDUSTRY FIT, PART 2. ● BEST FIT, ○ GOOD FIT, BLANK: NOT RATED

MATERIAL	DRINKS AND FROZEN FOODS	COSMETICS, HEALTH AND BEAUTY	LOGISTICS AND GENERAL PURPOSE	CHEMICAL AND SOLVENTS	CANNABIS	ESSENTIAL OILS
Matte paper			● Best			
High gloss paper	○ Good	● Best	● Best		○ Good	
Direct thermal	● Best		● Best			
Freezer grade	● Best		○ Good			
Matte polypropylene	● Best			● Best		○ Good
Gloss polypropylene	● Best	● Best	○ Good			
GHS stock, BS 5609				● Best	● Best	● Best
Polyester	● Best	● Best		● Best		
Polyimide						
Destructible vinyl			○ Good			

NEXT STEPS

Start from your hardest condition

The ten materials in this guide cover the demands we see most often and are good starting points for most labelling applications.

Choose for the worst day the label will see, not the best: the coldest application, the longest exposure, the roughest surface. Then match the adhesive and the ink or ribbon to that face.

Send us the size, printer, ribbon, surface, conditions and how long the label must stay legible. A label engineer will come back with a construction, a sample plan and pricing, and sample rolls to run on your line before you commit.

THE ORDER OF DECISIONS

Build the label from the hardest condition up

01

Hardest condition

Coldest application, longest exposure, roughest surface

02

Face stock

Paper or film that survives that condition

03

Adhesive

Matched to the surface and the service range

04

Ink or ribbon

Matched to the face and the printer

05

Sample rolls

Run on your own line before you commit

FIGURE 3. THE ORDER SET OUT IN THIS CHAPTER. THE DATA SHEET FOR YOUR EXACT CONSTRUCTION ALWAYS GOVERNS.



NEXT STEP

Tell us the hardest condition your label must survive.

Tell us what your labels need to do. With 50 years in barcode and identification, our label engineers will come back with a construction, a sample plan and pricing.

Request a label quote

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