

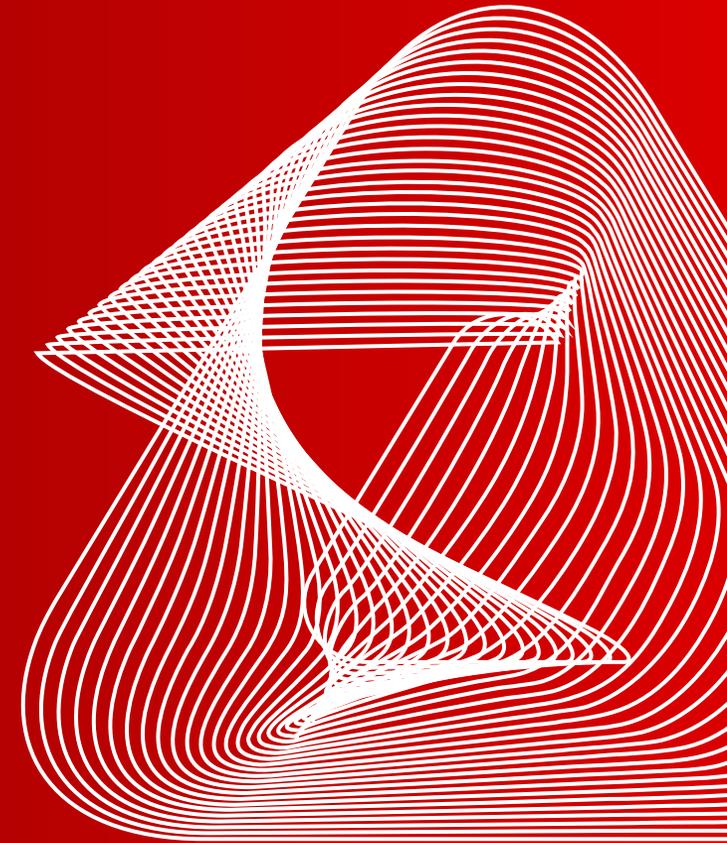


LabelTalk

by Avery Dennison - ASEAN

PSL 101 : Construction, Selection & Testing

2022



Welcome to the Webinar

Starts at 10:30 AM



Please wait

Agenda

PSA Label Material

Basic Elements

- Facestock
- Adhesive
- Liner

Selection Criterias

- 7 Q's

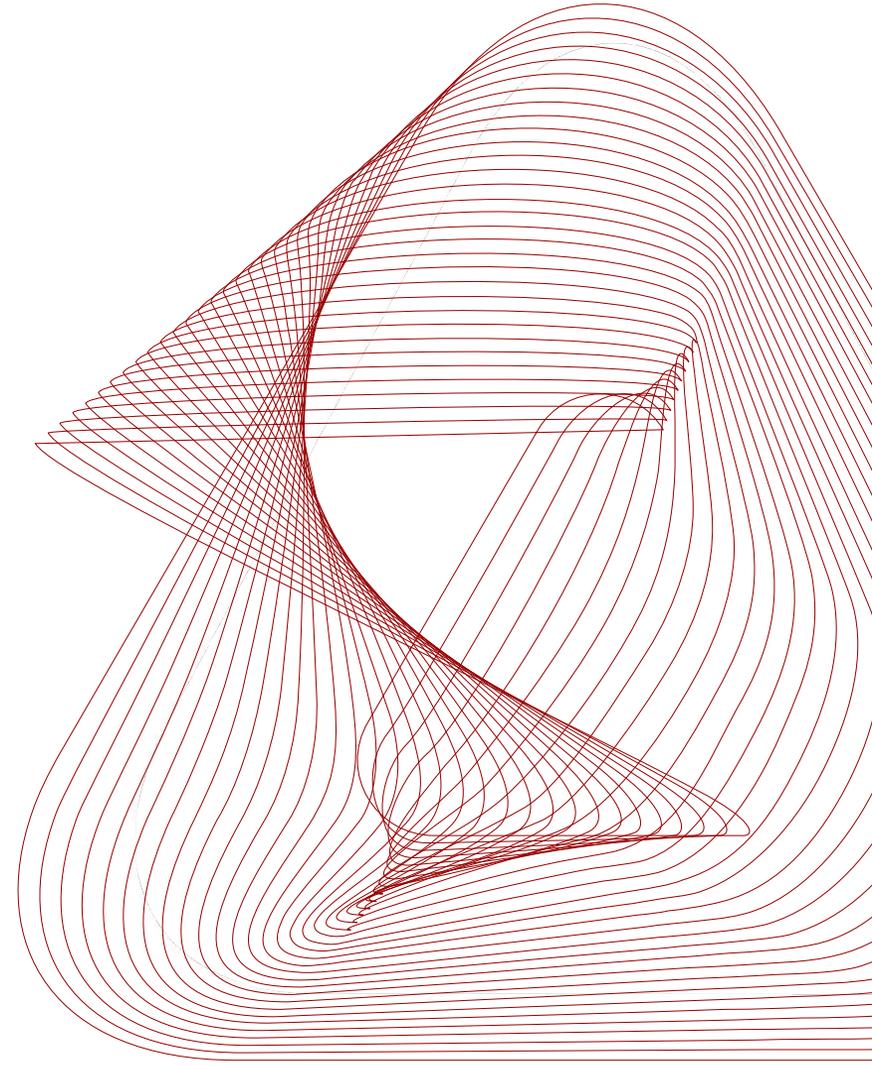
Resources

Declaration

Content of this session is compilation of standard tests in industry followed across ASEAN geography.

For this session we have used technical content, schematics for knowledge sharing purpose only.

Basic Elements



PSA Label Material Introduction



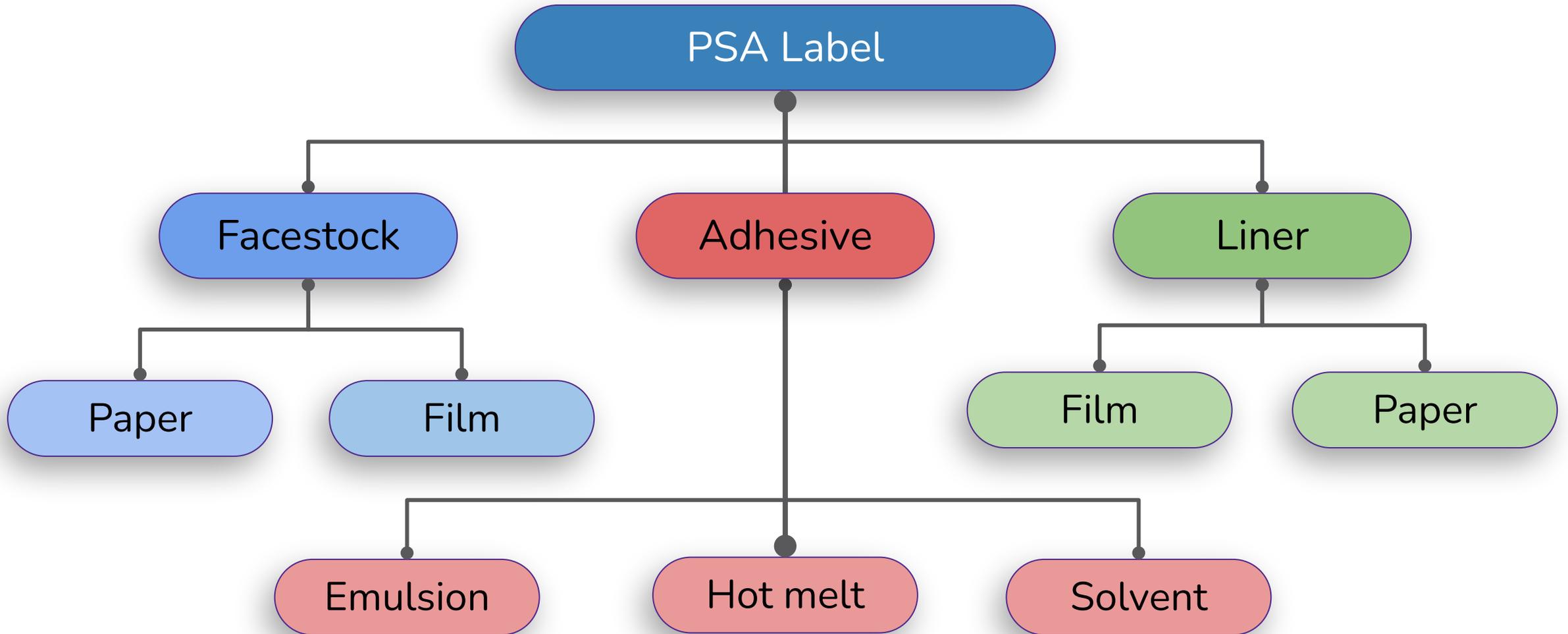
Choosing the **right** label
can make a **big** difference
to your **business**.

What is PSA label?

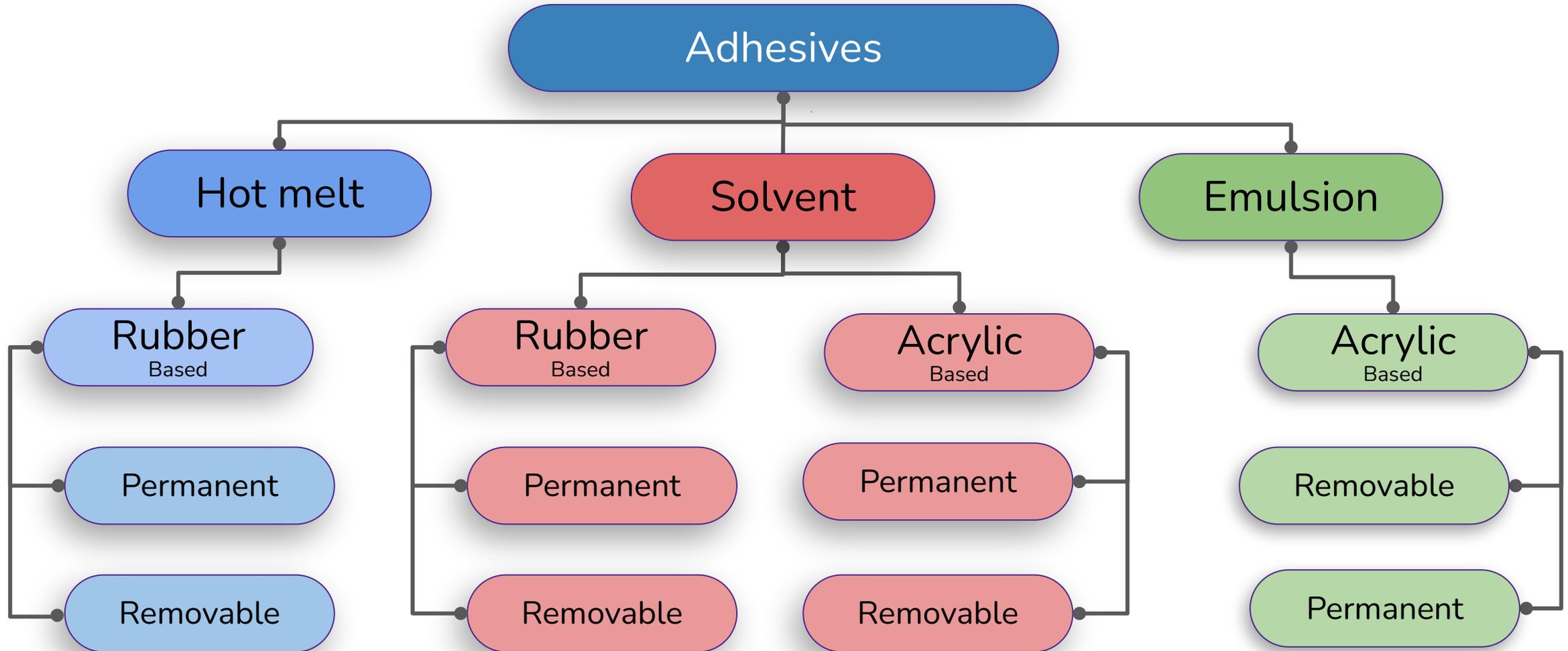
An adhesive which exhibits **tack** and needs only the application of **pressure** to achieve a bond to a substrate



PSA Label Material Elements

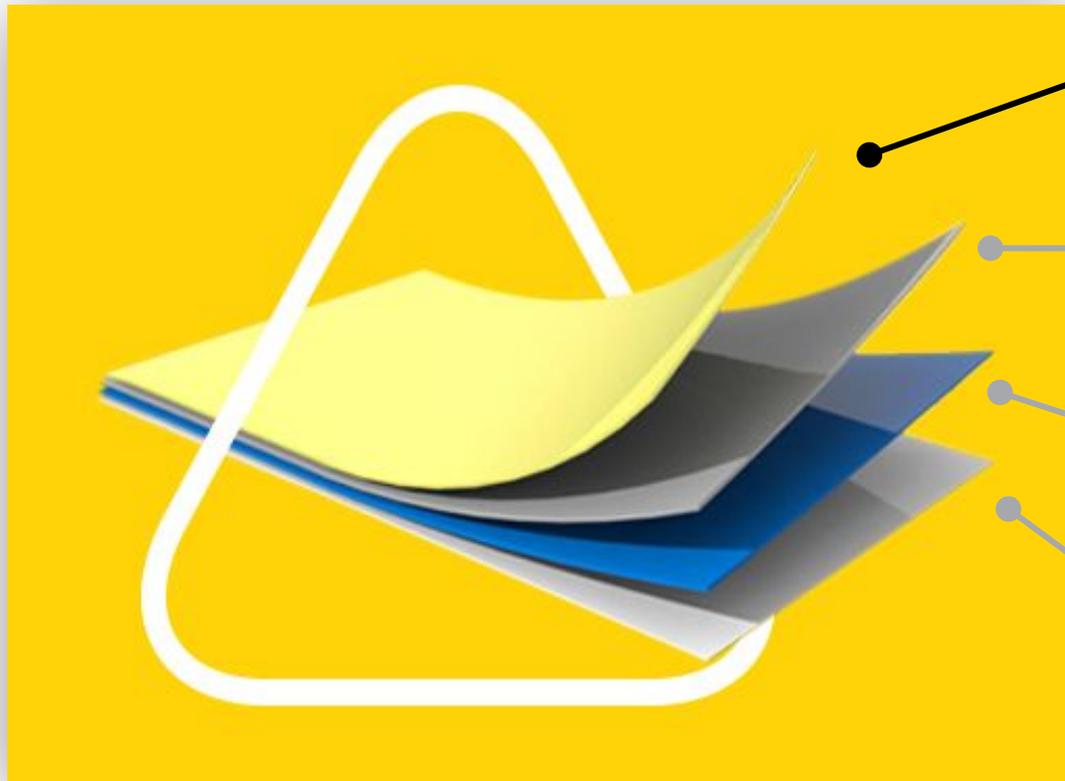


Types of Pressure Sensitive Adhesives



Basic Elements of PSA Label Material

Facestock



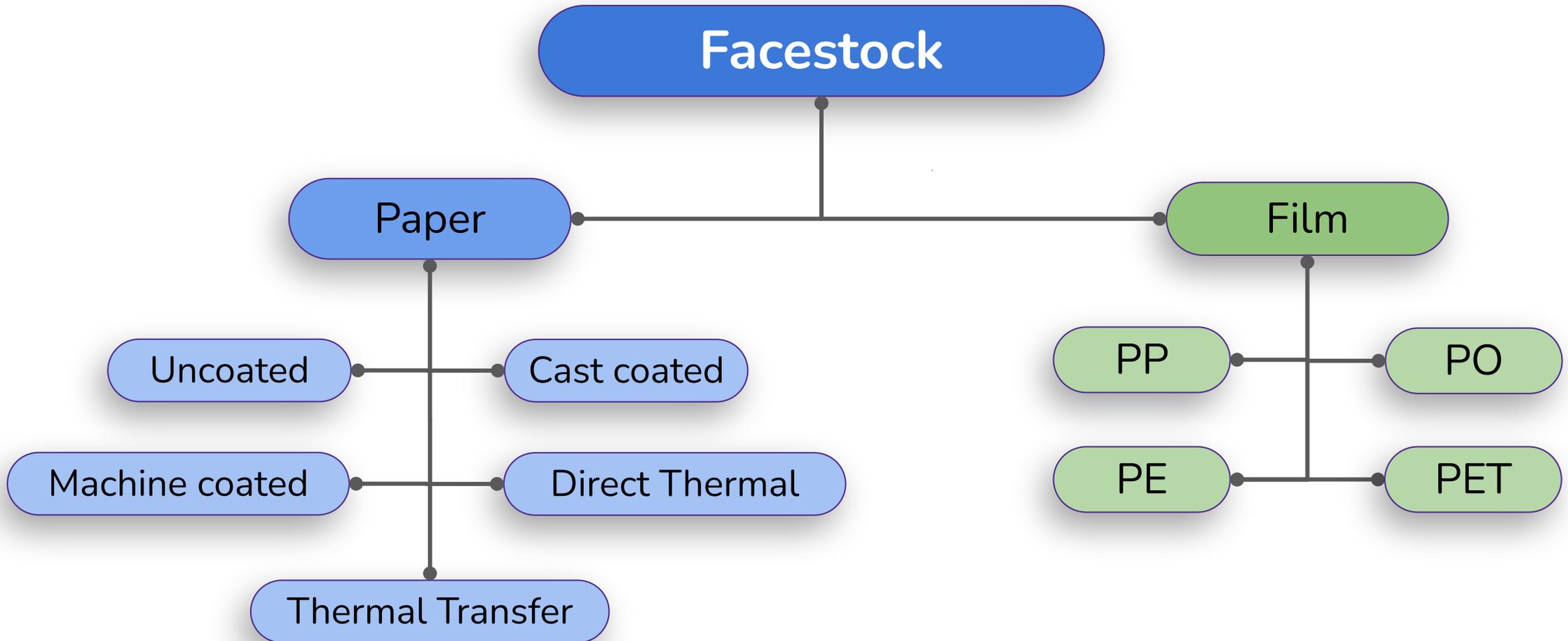
Facestock

Adhesive

Release Coating

Liner

Types of Paper and Film Facestock



Facestock Comparison

Paper

- Wide range of GSM, Grades
 - Uncoated, Semi Gloss,
 - High Gloss (Mirror finish),
 - Metallised,
 - Textured (wine)
- Suitable for flat, symmetric, uniform shape and surfaces
- Stiff and rigid
- FSC Grade

vs

Films

- Good moisture and tear resistance
- Good Resistance to UV, heat, chemical, abrasion and autoclave Exposures.
- Flexible or Conformable - ideal for squeeze & reclosure applications.
- Offers “No Label Look” on clear, transparent containers.
- Durable

Properties of Film Facestock

Film Type	Shrink Resistance	Solvent Resistance	Conformability (Flexibility)	Dispensing (Application)	Die cutting Performance	Printability (NTC)
PP	Best	Avg	Avg	Best	Best	Avg
PE	Avg	Poor	Best	Good	Good	Good
PO	Good	Avg	Good	Good	Good	Good
PET	Best	Best	Poor	Best	Best	Best

Basic Elements of PSA Label Material

Adhesive



Facestock

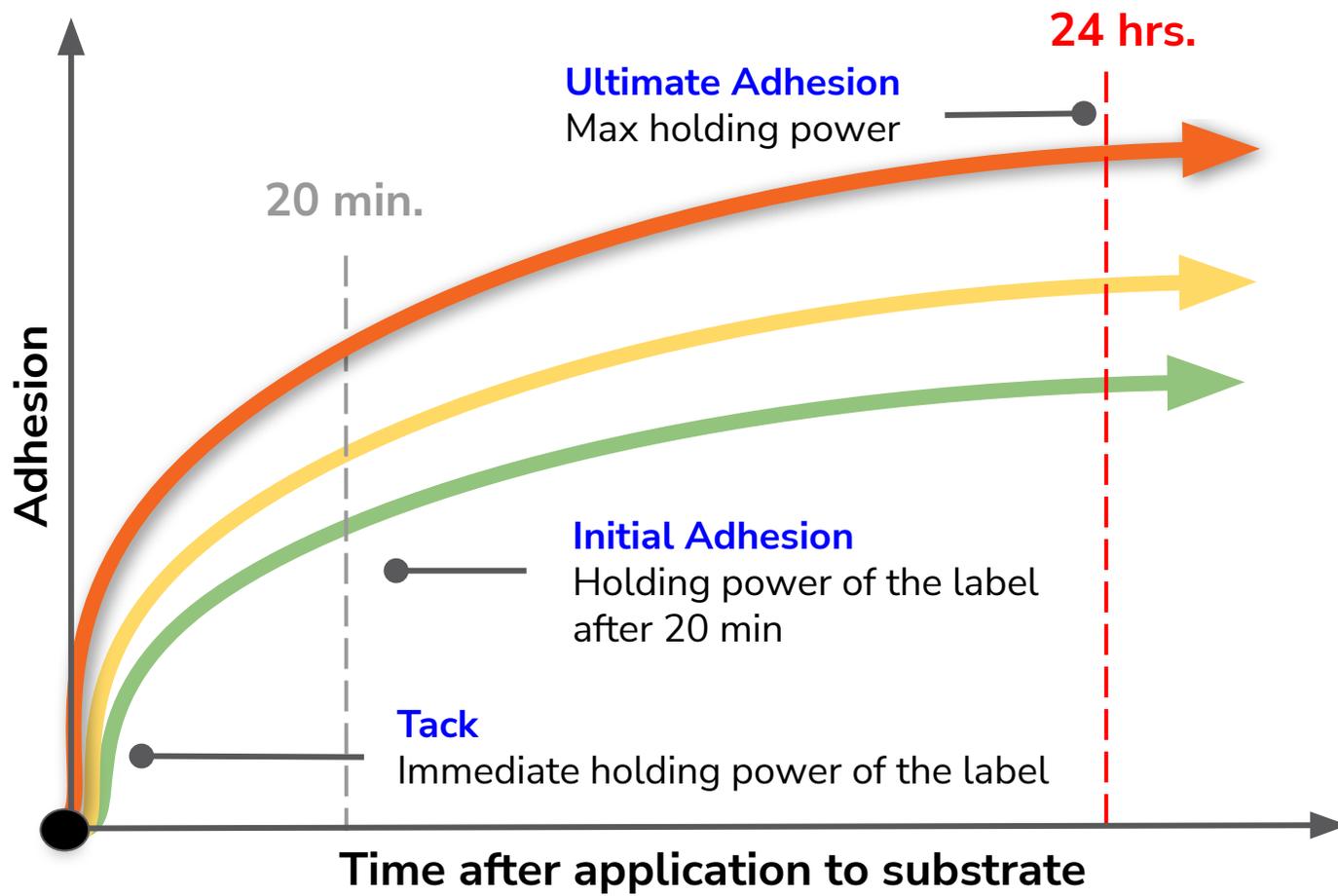
Adhesive

Release Coating

Liner

Adhesives Classification.

Significance of Time



Permanent

Label cannot be removed from the substrate without damage to it or the substrate.

Semi Permanent

Label can be removed from the substrate without damage to it or the substrate for a certain period.

Removable

Label can be removed from the substrate without damage to it or the substrate.

Adhesive Comparison - Emulsion & Hotmelt

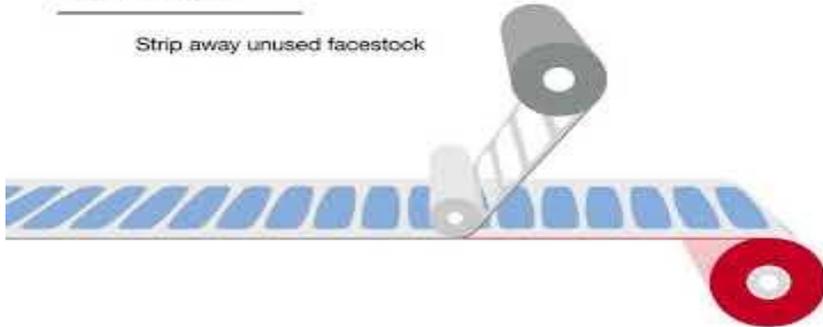
Emulsion

- Dispensing is fast & clean
- No label 'Look' (COC)
- Wide temperature range
- Recommend for Direct food contact



Emulsion

Strip away unused facestock



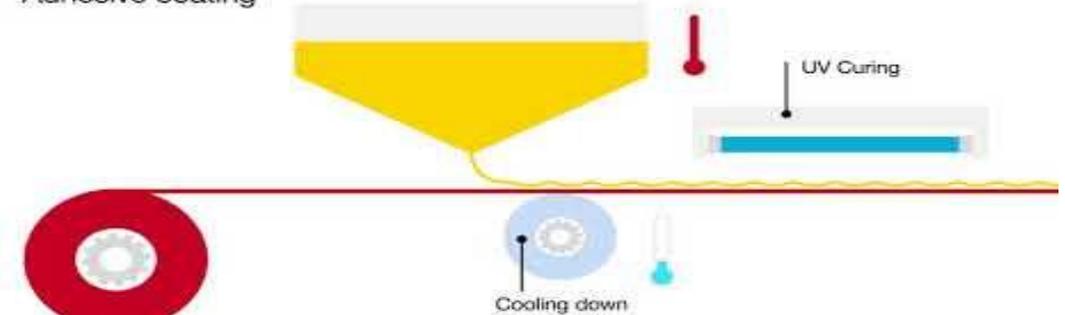
Hotmelt

- Excellent Initial Tack / Adhesion
- Suitable for Chilled Applications
- Excellent Water Resistance



UV-Acrylic Hotmelt

Adhesive coating



Adhesive Comparison -Emulsion & Hotmelt

Properties	Emulsion	Hotmelt
● Loop Tack	Avg	Best
● Peel Adhesion	Best	Best
● Die Cutting	Best	Good
● Adhesive Bleeding	Best	Good
● Clarity	Best	Avg
● Compatibility on Rough Surface	Avg	Best
● Adhesion to Low Surface Energy Substrates	Avg	Best
● Repositionability	Best	Poor
● Heat Resistance	Best	Avg
● UV Resistance	Good	Avg

Factors affecting adhesive performance

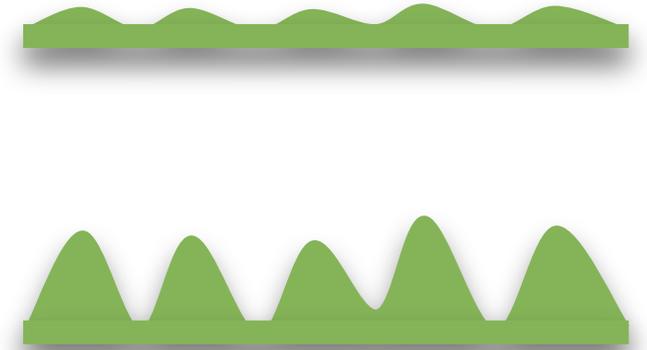
Composition/surface energy

- HDPE, PP surfaces require an adhesive with higher initial tack
- Texture - rough surfaces
- Higher coat weight
- More aggressive adhesive Irregular shape
- Use of aggressive adhesive
- More flexible facestock Contaminants on the surface
- Reduced adhesion with dirt, oil, frost (less contact to surface)

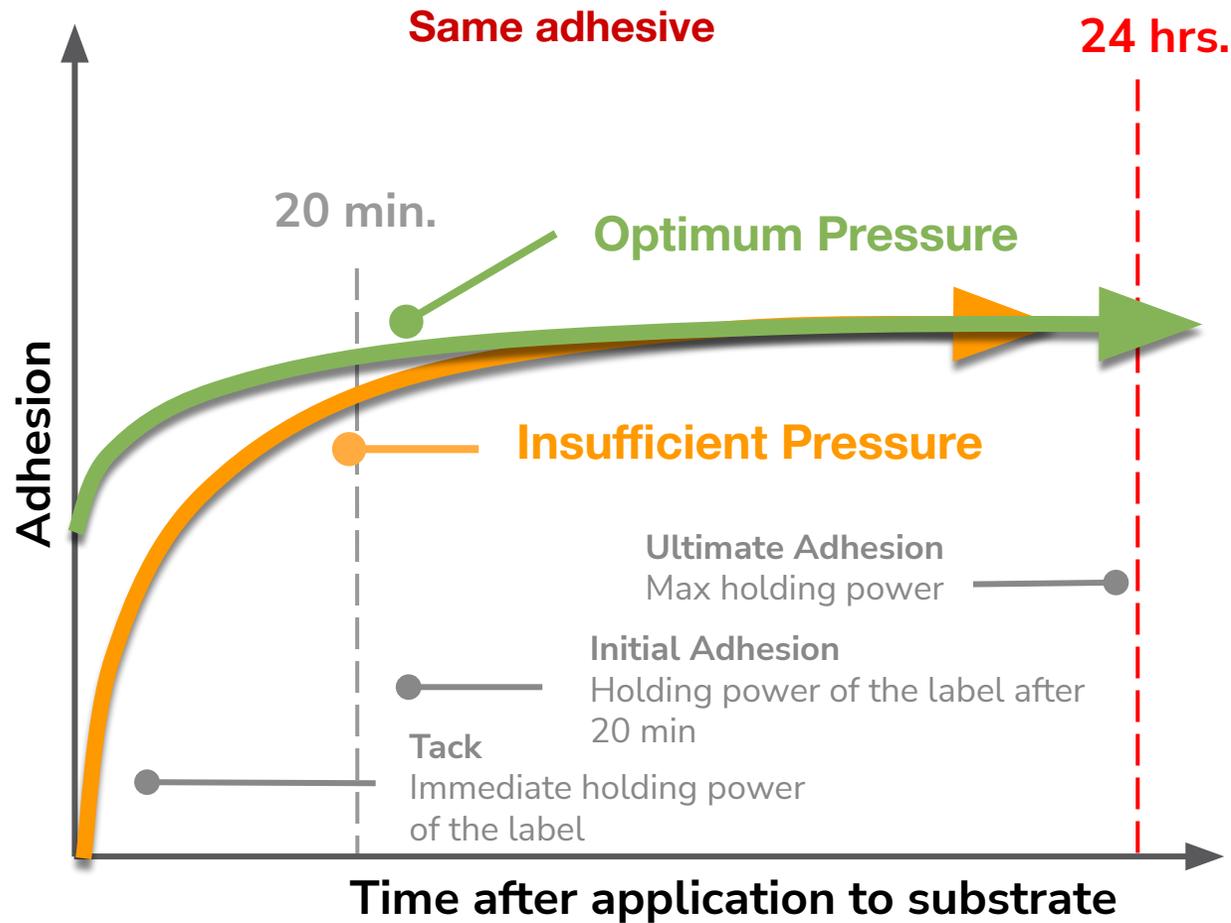
Environment (heat, oils, grease, moisture, etc)

Temperature

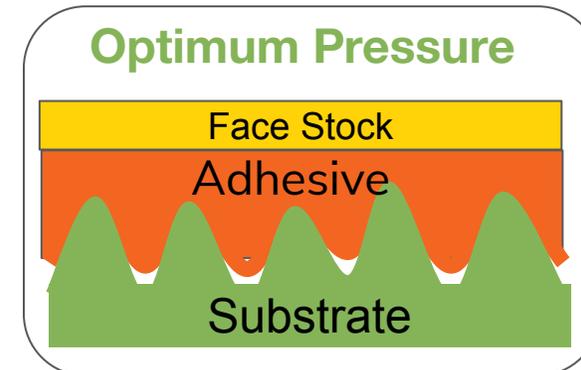
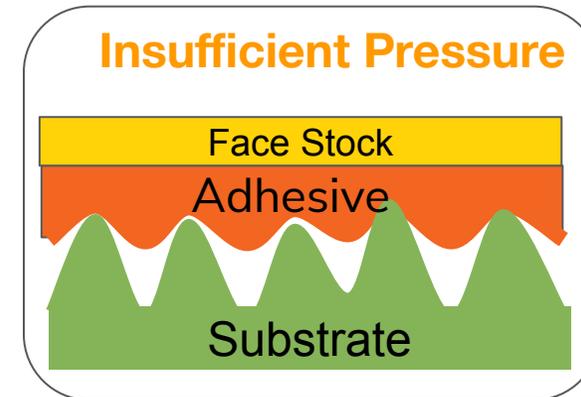
- Acrylic emulsion adhesives not suitable Service conditions
- Temperature of substrate cannot be below the freezing pt of the adhesive Moisture contact



Adhesives Significance of Pressure



- Adequate pressure **activated** adhesive.
- Use of right massaging tools or combination as per application requirements.
- Allow pre-determined time frame for adhesive to complete the desired bonding.



Basic Elements of PSA Label Material

Liner



Facestock

Adhesive

Release Coating

Liner

Types of Liner

Liners

What is Liner?

- Adhesive Carrier
- Label Transporter
- Release Surface
- Die Cutting Base
- Oxidation & Contamination

Paper

CCK

Kraft

Glassine

Glassine

Film

PET

Film

An uncalendered paper with a coating to assist with silicone hold out. Kraft liners have increased strength and better lay flat properties than a glassine liner.

A supercalendered paper, glassine liners offer increased density and rigidity suitable for die cutting.

Designed to provide optimum clarity for “no label look”.

Liner Paper vs Filmic Liner

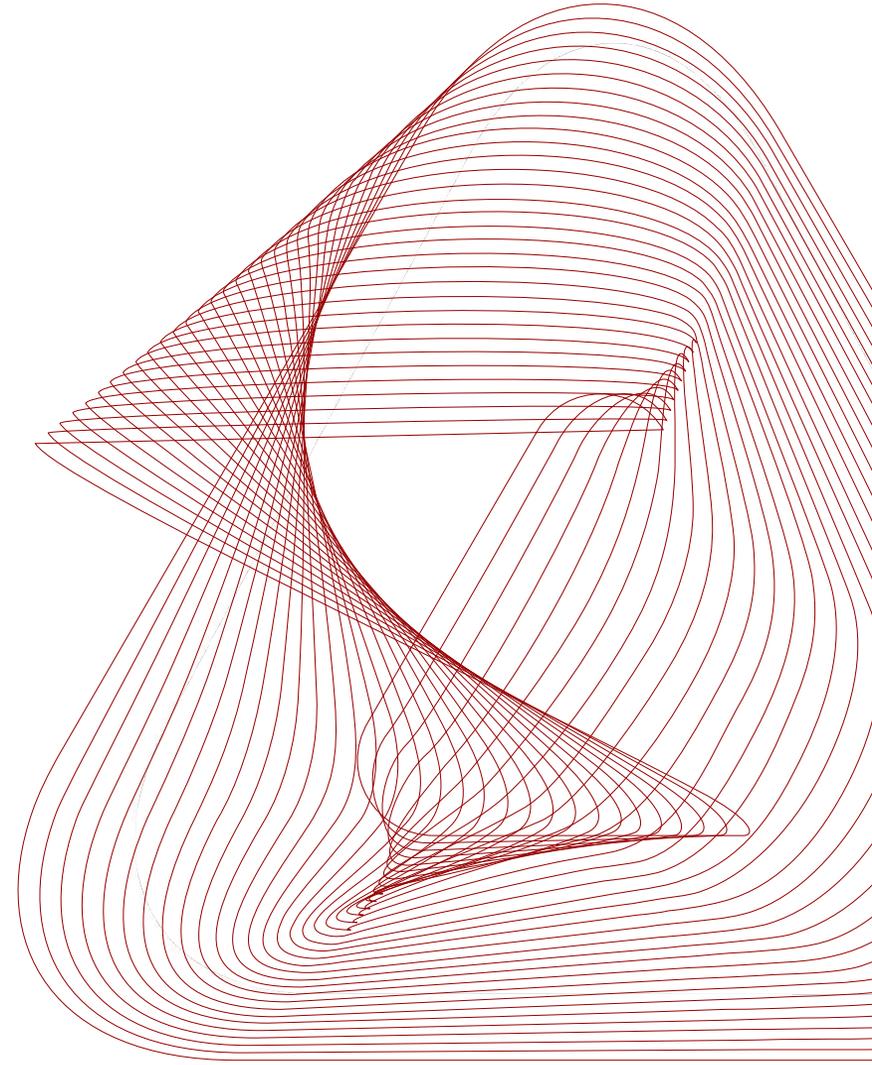
Paper

- Good lay flatness & rotary die cutting
- Ideal for perforation & punch applications.
- Label application **speeds up to 150 bpm**

Filmic

- Leaner, Stronger, Faster
- Used for label application **speeds greater than 150 bpm**
- Provides high strength to prevent liner breaks during automatic application.
- Film liners are also ideal for clear labelling applications for “No Label” appearance

Selection Criteria



Label Application Considerations Objective

- **Application** : Permanent or Removable?
- **Substrate texture** : Rough , Smooth?
- **Substrate temperature** : Application temperature ?
- **Surface contamination** : Moisture, Oil, Dust Etc ?
- **Substrate composition** : PVC, Corrugated, Glass, Etc ?
- **Substrate shape** : Round, Compound shape, Curve, Concave ?
- **Printing, imprinting requirements** : TT,DT,Laser,Ink Jet or Etc?



Question 1

Removable or Permanent



Removable

Label **can be removed** from the substrate **without damage** to it or the substrate



Permanent

Label **cannot be removed** from the substrate without damage to it or the substrate

Question 2

Substrate Composition

The level of adhesion will vary with the type of “**Substrate**” being used.



High Surface Energy

- Glass
- Steel
- PET



Low Surface Energy

- HDPE
- LDPE
- PP
- Powder Coated Surfaces

Question 3

Texture of the substrate surface



strate

Hotmelt
GPP Adhesive



Ultimate adhesion is achieved only



achieve acceptable adhesion
Hotmelt
Strong Hotmelt Adhesive



Question 4

Shape of the Substrate

Low Mandrel Application (Dia <1" or 25mm)

- High aggressive adhesive
- Flexible facestock.
- A wrap around (overlap) label may be preferable for very small diameter labeling.
- **No varnish at the overlap portion!**



Question 4

Shape of the Substrate

Compound Curves

- Require special label shape
- Flexible facestock for conformability to the surface.
- Film generally performs better for compound curves.



Question 5

Surface Clean or Contaminated?

Contamination

- Spillage
- Dust
- Moisture

Impact/ Challenges

- Air Pockets
- Poor adhesive performance
- Poor aesthetic looks
- Edge Lifting/Fall off



Question 6

Special application or exposure

Service Temp



Deep Freeze application
(~ -40°C)

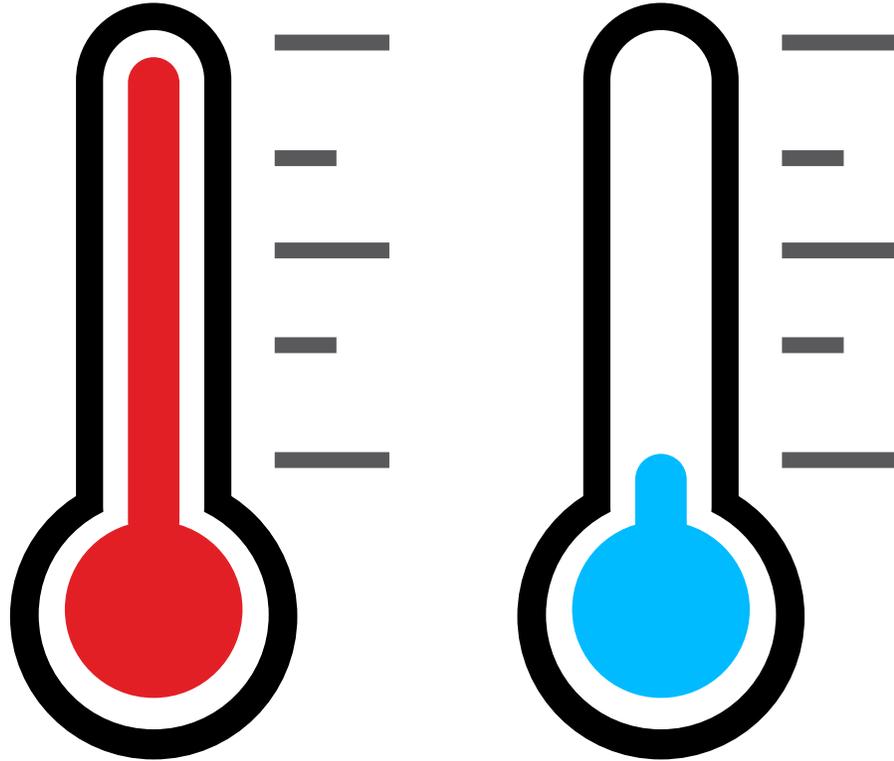


High Temperature
(~ 250°C)



Direct Contact with Ice/
Moisture

Substrate temperature



Application
Temp

Application conditions

- Hot/cold temp application
- Hot/cold filled containers (Required special kind of adhesive)

Question 7

Conversion Requirements



Offset

Sheets with Lay flat liner



Flexo

Rolls

- Top Coated (TC)
- Non Top Coated (NTC)
(Inline Corona treatment required for NTC)



Digital

Digital sheets & rolls
(Specially designed Digital Topcoat)

Question 7

Aesthetics and Conversion

Die Cutting

Glassine liner

Rotary and Flat bed machines

PET liner

Perfer Rotary Die Cutting Only

Application

Automatic Application

- Roll Form
- Glassine and PET liner work



Manual Application

- Sheet / Roll Form
- Paper liner with good lay flatness



Q

&

A