



## Escoat® P-20 Liquid Release Coat

**Introduction:** Escoat® P-20 Liquid is a non-silicone product especially produced and widely used for pressure sensitive labels, film and tapes. Its high degree of purity and quality offers superior properties and performance to critical users. Escoat® P-20 Liquid is used on films with adhesives based on natural rubber, SBR, SIS, acrylic, etc. primarily for obtaining release in self wound tapes where tight peel is mandatory. Escoat® P-20 Liquid is expected to give a peel strength 2-3 times the level expected from most silicone release agents. In addition, the non-stick properties of the resin in the Escoat® P-20 Liquid finds use in a wide range of applications outside the pressure sensitive area.

**Material Description:** Release Coat Varnish

**Chemical Name:** Polyvinyl Octadecyl Carbamate (PVODC)  
Isomeric hydrocarbon

**Empirical Formula:** (PVODC)  $[\text{CH}_2\text{-CH}(\text{OCONHC}_{18}\text{H}_{37})\text{-}]_n$   
Toluene  $\text{C}_7\text{H}_8$

**CAS #:** (PVODC) 36671-85-9  
Toluene 108-88-3

**Molecular Weight:** (PVODC)  $[339]_n$  or  $> 60,000$   
Toluene 92

**Physical Properties:** Appearance: Clear to amber colored liquid [gel at low temps]  
Odor: Benzol-like odor  
Concentration: 10% solids  
Solvent: Toluene  
Flash Point: 40° F (4.4° C) (Closed Cup)  
Specific Gravity (H<sub>2</sub>O=1) 0.82

**Characteristics:** Being a 10% solids content, Escoat® P-20 Liquid can and will form a gel upon standing. The stiffness of the gel depends upon the temperature. The gel may be dissolved back into the solution with very moderate temperature increases. Due to unknown flammability hazards of the toluene every precaution should be taken to prevent the consequences of incorrect handling. To avoid inconvenience of gel formation during coating operation, levels of 1% solids or less are recommended provided suitable coating techniques are available to give uniform consistent coating.

### Application Instructions:

- Temperature of Escoat® P-20 Liquid Release Coats should be at least 90°F to preclude gel formation.
- Mix well. Heat and mix until no residue is present. A milky waxy material could settle out if Escoat® P-20 Liquid Release Coats are stored at temperatures significantly below 90°F

- Recirculate Escoat® P-20 Liquid Release Coat from a heated, large container (5 gallon). The entire system must be warm including analox roller and reservoir before applying.
- For initial trial runs, operate at very slow speeds. It's important to *completely* dry ink and release coat. Rewind rolls, and allow rolls to temperature stabilize for 3-4 hours. Then unwind. Check for adhesive pick-off and tack of adhesive.
- Escoat® P-20 Liquid provides good release properties and prevents delamination or tearing when applied to the backing on the side opposite the adhesive. It has been extensively tested and is widely approved for use with pressure sensitive tapes such as polypropylene, polyester, polyethylene, cellophane, duct tapes and other substrates that require unwinding ease. May also be used for foil and paper. When Escoat® P-20 Liquid is used as a release coat on paper, a barrier coat is recommended. Escoat® P-20 Liquid is particularly useful to give light release on so-called "easy peel" acrylics.
- Good release properties can be obtained using as little as a 0.5 – 2.0% solids material in toluene and a very fine gravure roller. A smoothing bar after application is recommended. It is essential to keep the gravure roller clean at these low levels of application to ensure consistent application. Laboratory evaluations can be made with Meyer rods or other simple application methods where a consistent near monomolecular layer of Escoat® P-20 can be put down.

### **Printing:**

#### **Polypropylene, Polyester, & Polyethylene films:**

When printing tapes, be aware that tapes coated with acrylic adhesives may have release coat on non-adhesive side. In addition, solvent rubber and hot melt adhesive coated tape will have release coat.

### **Printing Sequence:**

Tapes with no release coat, printing procedure is as follows:

Corona treatment -> print -> dry -> release coat -> dry

Tapes with release coat, printing procedure is as follows:

Corona treatment or Primer -> dry -> print -> dry -> release coat -> dry

Release coat should be applied out of a heated recirculating system. Since toluene is corrosive to the printing plates commonly used with flexographic printing, choose plates that are solvent resistant.

### **Trouble Shooting:**

#### **A. Ink will not "stick"**

1. Check analox roller to make sure no "caking" of ink block gravure indentations on roller. These indentations must be cleaned to pick up ink. Same for release coat analox roller.
2. Check tape surface, is it release coated? If so, then it is almost impossible to directly apply ink. Generally rubber based adhesives are release coated. If tape is already release coated, you may need corona treating and/or a primer coating such as Mayzo's EPX-2 Primer.
3. Experiment with different inks. Consult ink supplier for inks compatible with your tape surface.

#### **B. Ink will not dry**

1. Slow press speed until drying occurs.
2. Use finer analox roller.

3. Add more heat and air movement or increase drying time.

C. Release coat “smears” ink

1. Use slower press speed. Make sure ink is dry. Add more heat and air.
2. Use finer analog for release coating.
3. Ask ink supplier for ink less soluble in toluene. Toluene is the solvent for Escoat® P-20 Liquid.

D. When unwound after printing, tape exhibits adhesive pick-off

1. Check release coat analog roller for cleanliness (blocked surfaces).
2. Reduce press speed. Release coating may not be completely dry.

**Packaging:**

Escoat® P-20 Liquid Release Coat is available in a five gallon (35-lb) pail and a 55 gallon 350-lb) drum. Escoat® P-20 Liquid is classified as Resin Solution, UN 1993, Class 3 Flammable Liquid.

**Storage:**

This product is a flammable liquid. Store in sealed containers in approved flammable storage areas. Avoid open flame, sparks, and high heat during use. Do not breathe vapors.

**Toxicity & Safety:**

This product is a flammable liquid. (See Storage above.) This material is not intended for use in products for which prolonged contact with mucous membranes or abraded skin, or implantation within the human body is specially intended, unless the finished product has been tested in accordance with the Food and Drug Administration and/or other applicable safety testing requirements. Because of wide range of such potential uses, Mayzo, Inc. is not able to recommend this material as safe and effective for such uses and assumes no liability for any such uses. Read and understand the Material Safety Data Sheet before using or handling this product.

**FDA Regulations:**

This product has not been tested for clearance by the FDA for use as an indirect food additive in food packaging and/or other applications. Contact your Mayzo representative if FDA clearance is needed.

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