

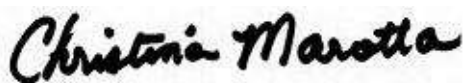
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## Certificate of Analysis

**Product Description:** Tween® 80  
**Catalog Number:** 103170  
**Lot:** MR31764**Formula:** N/A  
**CAS #:** 9005-65-6  
**Physical Description:** Clear, Yellow Viscous Liquid**Formula Weight:** N/A  
**Storage:** Room Temperature

| Test                 | Specification  | Results       |
|----------------------|----------------|---------------|
| Identity Test A      | Passes         | Passes        |
| Identity Test B      | Passes         | Passes        |
| Identity Test C      | Passes         | Passes        |
| Water Content        | $\leq 3.0\%$   | 2.1%          |
| Residue on Ignition  | $\leq 0.25\%$  | 0.08%         |
| Specific Gravity     | 1.06 - 1.09    | Passes        |
| Viscosity            | 300 - 500 cps  | 414 cps       |
| Heavy Metals         | $\leq 100$ ppm | <10 PPM       |
| Acid Value           | $\leq 2.2$     | 1.04 mg/KOH/g |
| Hydroxyl Value       | 65 - 80        | 70 mg/KOH/g   |
| Saponification Value | 45 - 55        | 50            |

Color (1963 Gardner): 3.7  
Iodine Value: 22 gI<sub>2</sub>/100 g  
Refractive Index: 1.4710  
1,4-Dioxane: 0 ppm  
Residual Solvents: Conforms to NF  
Peroxide Value: 2 meq O<sub>2</sub>/kg  
Ethylene Oxide: 0 ppm  
Assay  
-- C14:0 Myristic: 2.5%  
-- C16:0 Palmitic: 4.5%  
-- C16:1 Palmitoleic: 4.4%  
-- C18:0 Stearic: 1.5%  
-- C18:1 Oleic: 73.2%  
-- C18:2 Linoleic: 0.0%  
-- C18:3 Linolenic: 0.0%  
Residual Solvents: Conforms to NF  
Recommended Retest Date: 4/14/2016



08/18/2014 - Christina Marotta  
MP Biomedicals, LLC.  
Technical Director

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