

## Certificate of Analysis

Date of Testing: 2022-05-23 14:36:09  
Date of Next Testing: 2026-05-22 14:36:09  
Product Name: **TWEEN® 20**  
CAS Number: 9005-64-5  
Specifications & Purity: viscous liquid  
Lot #: C2226736  
SKU #: **T104863**  
**Analysis:** **082450**  
Storage Temperature: Room temperature

| Parameter              | Limit Values          | Result                |
|------------------------|-----------------------|-----------------------|
| Water by Karl Fischer  | 0-3 (%)               | 2.92 %                |
| Acid Value             | 0-2.2 (mg/g)          | 0.50 mg/g             |
| Residual Ethylene      | 0-1 (ppm)             | 0.50 ppm              |
| Viscosity(25 °C, neat) | 275-480 (cP)          | 377.00 cP             |
| Hydroxy Value          | 96-108 (mgKOH/g)      | 98.50 mgKOH/g         |
| Dioxane Content        | 0-10 (ppm)            | 5.00 ppm              |
| Saponification value   | 40-50 (mg/g)          | 42.70 mg/g            |
| Density (25°C)         | 1.08-1.12             | 1.10                  |
| Appearance (T104863)   | Yellow oily liquid    | Yellow oily liquid    |
| Infrared spectrum      | Conforms to Structure | Conforms to Structure |



John Su  
QA & QC Manager