

**TITRABLE ACID CONTENT or ACID INDEX**

March 17, 2015

**1.0 PURPOSE**

To analyze DMSO for titrable acid per our shipping specs.

**2.0 SAFETY/HEALTH****2.1 PPE**

Wear standard laboratory safety glasses and butyl rubber gloves. The dilute caustic used in this procedure poses a minimum safety risk.

**2.2 SAFETY SYSTEMS**

N/A

**2.3 HEALTH HAZARDS**

Refer to the Material Safety Data Sheets located in the Catalog of Chemicals.

**3.0 PROCESS DESCRIPTION****3.1 PROCESS OVERVIEW**

The acid content of our DMSO is an indication of shelf life. If the titrable acid is too high, the DMSO will decompose faster.

**3.2 SCOPE/BOUNDARIES**

N/A

**3.3 EQUIPMENT INVOLVED**

- 250mL Erlenmeyer flask
- 1mL pipet, 0.01mL graduated balance
- 100mL graduated cylinder

**3.4 REAGENTS**

- 0.01N Sodium Hydroxide
- Reagent grade water
- Phenolphthalein indicator (1% solution in 70% Isopropanol)

**4.0 PROCEDURE**

On a balance, add 50 grams of Dimethyl Sulfoxide to the 250mL flask. Using the graduated cylinder, add 100ml of reagent grade water to the sample flask. Swirl the flask until DMSO and water are completely in solution. Now add five drops of phenolphthalein indicator and swirl the flask again.

Titrate the sample to a pink endpoint with 0.01N NaOH. Record the number of milliliters of NaOH used to titrate. The calculations are listed below:

Calculations:

$$\text{Titration Acid} = \frac{(\text{Vol NaOH used}) (0.01 \text{ N})}{\text{Sample weight (g)}}$$

$$\text{Acid Index} = \frac{(\text{Vol NaOH used})(0.01 \text{ N})(56.11)}{\text{Sample weight (g)}}$$

## 5.0 DOCUMENTATION

None associated with this procedure.

## 6.0 GLOSSARY

None associated with this procedure.

## 7.0 REFERENCE

Reagent Chemicals (Current Edition)

## 8.0 TEST SPECIFICATION

Test specifications :

$$\text{Titration Acid} = 0.001 \frac{\text{meq}}{\text{g}}$$

Titration Acid = NMT 5.0 ml titrant used

$$\text{Acid Index} = 0.04 \frac{\text{mg/KOH}}{\text{g}}$$

## 9.0 REVISION LOG

Date	Paragraph	Description of Change
10/23/2008	All	Last revision before issued in Web-Based QMS
10/23/2010	Additional	Change Greg Ashe to Quality Manager
4/19/2012	Title, 4.0, 8.0	Title – added acid index. 4.0-added calculations. 8.0-added calculations.
3/17/2015	8.0	Added 2 <sup>nd</sup> line of titration acid to reflect current practice.

Comments, questions or suggestion, please e-mail  
Quality Manager