METHOD SUMMARY

A sample is evaporated to dryness in a tared evaporating dish on a hot plate. The dish is cooled and reweighed. The ppm by weight of residue is calculated and reported. Limit of quantitation is 10 ppmw.

SAFETY

Acrylonitrile is hazardous to the health and dangerous to handle. Use acrylonitrile in a well ventilated hood. Review the MSDS for detailed information concerning toxicity, first aid procedures and safety precautions.

Refer to the appropriate safety section or site manual for the necessary protective equipment to use when handling any reagents or samples.

REFERENCES

STM(Sohio Test Methods) C7-75, "Non-Volatile Matter in Acrylonitrile"

APPARATUS AND REAGENTS

1. **Hot plate,** capable of maintaining a temperature of 80℃ ± 2℃. The heating element should be enclosed so that acrylonitrile fumes cannot be ignited.
2. **Balance**, analytical, accurate to ± 0.1 mg.
3. **Evaporating Dish** - Nickel, aluminum, platinum, glass or ceramic with a capacity of 150 to 200 mL.
4. **Desiccator** - with indicating desiccant.
5. **Graduated cylinder**, 250 mL.

CALIBRATION

The balance used for this method should be certified and/or calibrated in accordance with Method CAL-3.

PROCEDURE

1. Weigh a clean, dry evaporating dish on an analytical balance to 0.1 mg.
2. Measure 125 mL of sample with a graduate and transfer to the dish.
3. Place the dish on a hot plate set to 80°C in a hood and slowly evaporate to dryness.
4. Cool in a desiccator. Reweigh and determine weight of residue.

CALCULATIONS

1. Calculate the concentration of non-volatile matter in ppm, with the following equation:

$$\text{NVM, ppm} = \frac{(W_2 - W_1) \times 10^3 \text{ mg/g}}{(V_1)(0.807 \text{ g/mL}) \quad \text{Kg} / 10^3 \text{g}}$$

where:

W_1 = wt dish, g
W_2 = wt dish + residue, g
V_1 = sample volume, mL
0.807 g/mL = density of acrylonitrile

REPORT

Report ppm non-volatile matter in the sample to the nearest 10 ppmw. If the result is less than 10 ppmw, report as <10 ppmw.

For example: Non-volatile matter, ppmw = 50