IAFMM FISH OIL BULLETIN

international association of fish meal manufacturers

Hoval House, Orchard Parade, Mutton Lane, Potters Bar, Herts. EN6 3AR, England.
Tel: (Potters Bar) 0707 42343/4/5 Telex: 8811909 London.

No. 8 June 1981

RECOMMENDED METHOD OF ANALYSIS FOR DETERMINATION OF ANISIDINE VALUE OF FISH OIL

1. General

The Anisidine value (AV) is a measure of the alpha-beta unsaturated aldehydes of fats and oils. The Anisidine method replaces the former Benzidine method due to the toxic Benzidine. Notice that the two methods gives different values. Applicable to marine body oils.

2. Principle

The Anisidine value is defined as 100 times the contribution of the extinction of 1 gram oil in 100 ml solvent and Anisidine reagents, read at 350 n m

The oil is dissolved in iso-Octane and treated with p-Anisidine in Acetic-Acid solution. The extinction is measured, corrected for blank, and multiplied by 100.

3. Reagents

All reagents shall be of analytical reagent grade.
para Anisidine p.a.
2,2,4, Trimethylpentane (iso-Octane) 99%.
Acetic-Acid 100% p.a.
Anisidine reagent 0.25% w/v. Dissolve 0.25g para-Anisidine in 100 ml Acetic-Acid.

4. Apparatus

Volumetric flask 25 ml.
Test-tubes 10 ml glass stoppered.
Pipettes 1 ml and 5 ml.
Spectrophotometer.

5. Method

Weigh 0.5g - 4g oil accurately into a 25 ml volumetric flask.
Dissolve and make up to volume with iso-Octane and mix.
Measure the absorbance of the fat solution against pure iso-Octane at 350 n m in a one cm glass cell. Pipette 5 ml of the fat solution into a test-tube A and 5 ml iso-Octane into a test-tube B. Add 1 ml Anisidine reagent into test-tubes A and B. Stopper the tubes, shake vigorously and leave in a dark place for exactly 10 min.
Measure the absorbance of the content of tube A against tube B at 350 n m in a one cm glass cell.

6. Calculation

$$\frac{25\ (1.2 \times Eb - Ea)}{W} = \text{Anisidine value}$$

Ea is the net absorbance of the fat-solution.
Eb is the net absorbance of the fat-anisidine-solution.
W is weight of sample.

7. Repeatability

The difference between the results of two determinations carried out simultaneously or in rapid succession by the same analyst should not differ by more than 0.5 in a sample with AV between 1-20.

NOTES

1. Para-anisidine shall be colourless or mostly pale yellow. Otherwise the para-anisidine must be purified by dissolving in hot water (70°C) and filtered through filterpaper Whatman No. 5. Cool and place the liquid in a refrigerator at ca. 5°C and leave over night. Decant the liquid through fitted glass filter under suction and transfer the crystals to the filter. Wash with small quantities of iced water and remove the adhering water by drawing air through the filter. Store in desiccator away from light.

2. Para-anisidine is very aggressive, avoid contact with skin and eyes.