Titanium in Tinted Sunscreen

DIGESTION OF TINTED SUNSCREEN FOR TITANIUM USING COLDBLOCK™ DIGESTION TECHNOLOGY

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Introduction

This application note will focus on the digestion of ultra-fluid tinted sunscreen lotion SPF 60+ using ColdBlock ™ Digestion CB12L Technology.

Method

Triplicate samples of homogenized sunscreen were digested using the following 3 methods:

- Chiller temperature was set to -5°C
- Sunscreen was shaken and mixed for ~3-5 minutes to create a homogenous sample
- 0.25g of the homogenous sample was weighed and placed into a ColdBlock™ Digestion vessel.
- 15mL of H2SO4 was added carefully
- Sample was digested at 100% power for 10 minutes.
- Then 5mL Aqua Regia & 3mL H2O2 was added and digested again at 100% for 5 minutes
- Sample was cooled and topped up to 50mL with 2% HNO3
  *Strong acid leach method – some white siliceous material remains

OR

- Chiller temperature was set to -5°C
- Sunscreen was shaken and mixed for ~3-5 minutes to create a homogenous sample
- 0.25g of the homogenous sample was weighed and placed into a ColdBlock™ Digestion vessel.
- 15mL of H2SO4 was added carefully
- Sample was digested at 100% power for 10 minutes.
- Then 5mL Aqua Regia & 3mL H2O2 was added and digested again at 100% for 5 minutes
- Sample was carefully decanted to a plastic 50mL tube and 3.5g of NH_4F (a safer alternative to HF) was added slowly to the hot digestate

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- Once the sample was clear, it was topped up to 50mL with 2% HNO3
  *Complete Dissolution/Total Digestion – HF created in situ

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- 15mL of H2SO4 was added carefully
- Sample was digested at 100% power for 10 minutes.
- Then 5mL Aqua Regia & 3mL H2O2 was added and digested again at 100% for 5 minutes
- Sample was carefully decanted to a plastic 50mL tube and 2mL of HF was added slowly to the hot digestate
- Once the sample was clear, it was topped up to 50mL with 2% HNO3
  *Complete Dissolution/Total Digestion

Instrument

ColdBlock ™ Digestion CB12L Technology.

General

This procedure is specific for the sample digested and may need modification for different samples to achieve the desired result.

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