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QB

LIGHT INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

QB/T 4975-2016

Safety technical specifications for using flammable refrigerants in household and similar room air conditioner industry

使用可燃性制冷剂生产家用和类似用途房间空调器安全技术规范

(English Translation)

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard was proposed by China National Light Industry Federation.

This standard shall be under the jurisdiction of the National Standardization Technical Committee of Flavor, Flavor and Cosmetics (SAC/TC 257).

Drafting organizations of this standard. Dalian Institute of Product Quality Inspection (National Center for Quality Supervision and Inspection of Daily Chemical Products), Dalian Food Inspection Institute, Shanghai Institute of Daily Chemical Industry (National Center for Quality Supervision and Inspection of Flavor and Cosmetics).

1 Scope

This standard specifies the methods for the determination of hexavalent chromium in cosmetics, by diphenylcarbazide spectrophotometry and ion chromatography-inductively coupled plasma mass spectrometry.

This standard applies to the determination of hexavalent chromium in cosmetics. When the sample weight is 2 g, the detection limit of diphenylcarbazide spectrophotometry is **0.25 mg/kg, the quantification limit is 0.83 mg/kg; the detection limit of ion** chromatography-inductively coupled plasma mass spectrometry is 0.010 mg/kg, the quantification limit is 0.033 mg/kg.

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2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) is applicable to this standard.

GB/T 6682 Water for analytical laboratory use - Specification and test methods

3.1 Principle

After the sample is extracted by the alkaline leaching solution, the hexavalent chromium in the leaching solution reacted with diphenylcarbazide in an acidic solution, to form a purple-red complex, which was determined by spectrophotometry, at a wavelength of 540 nm.

3.2 Reagents

Unless otherwise specified, the reagents are of analytical grade. The water is the first grade water, which is specified in GB/T 6682.

3.5 Result calculation

Calculate the hexavalent chromium, X, in the specimen, according to formula (1).

3.6 Recovery and precision

When the standard addition concentration is in the range of 0.5 mg/L ~ 10.0 mg/L, the recoveries are in the range of 88.4% ~ 102.9%, the precisions are in the range of 1.9% ~ 7.1%.

3.7 Tolerance

The absolute difference, between the results of two independent determinations, which are obtained under repeatability conditions, shall not exceed 10% of the arithmetic mean.

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4.1 Principle

After the samples are extracted with alkaline leaching solution, the leaching solution is determined by ion chromatography-inductively coupled plasma mass spectrometry, AND quantified by external standard method.

4.2 Reagents

Unless otherwise specified, the reagents are of analytical grade. The water is the first grade water, which is specified in GB/T 6682.

4.4.1 Pre-treatment of sample

Accurately weigh (0.5 g ~ 2 g, accurate to 0.0001 g) of the sample, into a 50 mL graduated centrifuge tube. Add 20.0 mL of extract (4.2.8) and 0.5 mL of buffer (4.2.9). Completely submerge the sample in the extract. Shake well. Carry out ultrasonic extraction, at 60 °C for 20 min. Take it out. After cooling to room temperature, use water to make the volume to 25.0 mL. Add 2.0 g of activated carbon powder. Shake well. Use filter paper to filter it. Discard the first 1 mL of filtrate. Collect the filtrate. Use microporous filter membrane (4.2.13) to filter the collected filtrate. Prepare for determination. Meanwhile do a reagent blank test.

4.4.3 Determination

The instrument is tuned and set, to measure the standard curve solution, reagent blank solution, sample solution in sequence. See Appendix A, for instrument reference conditions.

4.6 Recovery and precision

When the standard concentration is in the range of 0.10 mg/kg ~ 10 mg/kg, the recovery rate is 86.0% ~ 103.7% AND the precision is in the range of 1.1% ~ 8.1%.

4.7 Tolerance

The absolute difference, between the results of two independent determinations, which are obtained under repeatability conditions, is not more than 10 % of the arithmetic

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mean.

Appendix A

(Informative)

Reference conditions of instrument

A.1 Ion chromatography conditions

The ion chromatography conditions are as follows.

A.2 Inductively coupled plasma mass spectrometry conditions

Inductively coupled plasma mass spectrometry conditions are as follows.

Appendix B

(Informative)

Ion chromatography-mass spectrograms of standard solutions and samples

See Figure B.1 and Figure B.2, for the ion chromatogram-mass spectrum of the standard solution and sample.

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Determination of hexavalent chromium in cosmetics

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