

**BUREAU OF INDIAN STANDARDS**

DRAFT FOR COMMENTS ONLY

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भारतीय मानक मसौदा  
**कार्यस्थल पर वायु — द्रव क्रोमेटोग्राफी और द्रव्यमान  
स्पेक्ट्रोमीटरी के प्रयोग द्वारा आग्नेनोनाइट्रोजन  
वायु में यौगिक ज्ञात करना**

भाग 1 डाइब्यूटाइलऐमीन व्युत्पन्न का प्रयोग करके आइसोसायानेट्स ज्ञात करना  
*(IS 16139(Part 1) का पहला पुनरीक्षण)*

*Draft Indian Standard*

**Workplace Air — Determination of Organonitrogen  
Compounds in Air Using Liquid Chromatography and  
Mass Spectrometry**

Part 1 Isocyanates Using Dibutylamine Derivatives

*(First Revision of IS 16139(Part 1))*

(ICS 13.040.30)

**Air Quality Sectional Committee, CHD 35**

**Last Date for Comments:**

Air Quality Sectional Committee, CHD 35

NATIONAL FOREWORD

*(Formal clause shall be added later)*

Isocyanates have been used in industry for about 50 years. They are commercially important chemicals mainly used for the production of polyurethane (PUR). In spite of controls to limit exposures, there are adverse health effects such as asthma, contact dermatitis, and hypersensitivity pneumonitis as consequences of exposure to isocyanates in some industrial sectors.

This standard was originally published in 2014 as an identical adoption of ISO 17734-1: 2006 under dual numbering. The first revision of this standard has been undertaken in order to adopt the latest version of ISO 17734-1 : 2013.

This part gives general guidance for the sampling and analysis of airborne isocyanates in workplace air. When amines and aminoisocyanates are suspected to be emitted (e.g. from thermal degradation of PUR), it is recommended that, in addition to isocyanates, the amines and aminoisocyanates in the air are determined, using DBA and ethyl chloroformate as reagents.

This Indian standard has been published in two parts. The other part in this series is:

Part 2 Amines and aminoisocyanates using dibutylamine and ethyl chloroformate derivatives

The text of ISO Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions and terminologies are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

- a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
- b) Comma (,) has been used as a decimal marker in the International Standard, while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards, which are to be substituted in their places, are listed below along with their degree of equivalence for the editions indicated:

<i>International Standard</i>	<i>Corresponding Indian Standard</i>	<i>Degree of Equivalence</i>
ISO 5725-2, Accuracy (trueness and precision) of measurement methods and results — Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method	IS 15393 (Part 2) : 2021/ISO 5725-2 — Accuracy trueness and precision of measurement methods and results -- Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method	Identical with ISO 5725-2: 2019

The technical committee has reviewed the provisions of the following International Standards referred in this adopted standard and has decided that they are acceptable for use in conjunction with this standard.

<i>International Standard No</i>	<i>Title</i>
ISO 16200-1,	Workplace air quality — Sampling and analysis of volatile organic compounds by solvent desorption/gas chromatography — Part 1: Pumped sampling method

In this adopted standard, reference appears to certain International Standards where the standard atmospheric conditions to be observed are stipulated which are not applicable to tropical/subtropical countries. The applicable standard atmospheric conditions for Indian conditions are  $(27 \pm 2)^{\circ}\text{C}$  and  $(65 \pm 5)$  percent, relative humidity and shall be observed while using this standard.

In reporting the result of a test or analysis made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS 2: 2022 'Rules for rounding off numerical values (second revision)'