

IS 4560: 2024 Nitric Acid — Code of Safety (First Revision)

Nitric acid is an important industrial chemical mainly used in the manufacture of fertilizers, dyes, drugs, explosives, celluloid and nitrates. It is also used in organic synthesis, metallurgy, medicine, photo-engraving, ore floatation, etching of steel tools and the like. In spite of its long range of uses, it is also one of the most corrosive and hazardous chemical. Handling of nitric acid, therefore, presents various hazards which are better prevented than cured. A sound code of practice will reduce the frequency of hazards and also in many cases the amount of damage caused by an accident.

This standard attempts to guide the users in the recognition of the hazards and recommended handling procedures. This standard describes properties nitric acid, the nature of hazards associated with it and essential information on storage, handling, packing, labelling, waste disposal, cleaning and repair of tanks, selection and training of personnel, personal protective equipment and first-aid. The elimination of accidents is vital to public interest. Accidents produce economic and social loss, impair individual and group productivity. Realization of this loss has led the authorities to devote a good deal of attention to safety education.

This code describes the properties of nitric acid, the nature of hazards associated with it and the essential information on storage, handling, packing, labelling, and disposal of waste, cleaning and repair of containers, training of personnel, selection of personal protective equipment and first aid. It does not, however, deal with hazards relating to manufacture of nitric acid or to the raw materials used in its manufacture. BIS has published a separate standard IS 264 : 2005 on the requirements, methods of sampling, and test for nitric acid of technical, explosive, analytical grades.

IS 168: 2024 Ready Mixed Paint, Air Drying, for General Purpose — Specification (Fifth Revision)

The standard was first published in 1950 and underwent its first revision in 1965, amalgamating IS 168 : 1950 and IS 169 : 1950, the two specifications for the brushing and spraying types respectively of ready mixed paint, quick drying, matt, for general purposes in various colours. The second revision was carried out in 1973. This was again revised in 1993 on the suggestion of Ministry of Defence in order to quantify the various requirements such as volume solids, gloss, fineness and mass in kg/10 litres and to bring it at par with defence specifications.

In 2016, the fourth revision aimed to incorporate lead restriction limits due to concerns about health and environmental impacts. Different levels of lead restriction were introduced for paints used in household/decorative and industrial/commercial applications. The committee recognized the feasibility of manufacturing the product with low lead limits, prompting the introduction of a maximum permissible limit of lead of 300 ppm. Along with lead restrictions, a cautionary notice was added to raise awareness of lead toxicity. Reference to various parts/sections of IS 101 for the requirements given in the standard were updated.

Additionally, the method of test for durability by carbon arc type weathering apparatus was substituted by a method using xenon arc type weathering apparatus as it is found that carbon arc type weathering apparatus is no more in use. Test conditions for fastness to light test was also prescribed.

In recognition of the substantial consequences of volatile organic compounds (VOC) on the environment and human health, this fifth revision has been taken up to limit the VOC content in paint products. This

fifth revision aims to promote the usage of low VOC or VOC-free products, marking a significant step towards fostering a healthier and more sustainable environment. The prescribed limits have been carefully established, taking into account the current capabilities of small, medium, and large-scale manufacturers to produce compliant products. The ultimate goal of these measures is the complete elimination of VOC from paint products. These initial limits are expected to serve as the foundation for future reductions, encouraging manufacturers to develop and adopt innovative technologies and processes that facilitate the production of VOC-free paints.

IS 354 (Part 1) : 2024 Resins for Paints — Methods of Sampling and Test Part 1 General Test Methods (Third Revision)

This standard was first published in 1952 to cover methods of sampling and general test methods mainly for natural resins. Subsequently, an Indian Standard for methods of sampling and test for natural and synthetic resins was published as Part 2 of the standard in 1971. In the first revision on 1976, these two parts were amalgamated. The second revision in 1987 recognized the growing presence of newer synthetic resins like polyamides, polyvinyl, and emulsion polymers in India's manufacturing landscapes. To accommodate these changes, the committee responsible for this standard opted to divide it into several parts, each catering to specific resin types:

Part 1 General test methods

Part 2 Special test methods for alkyd resins

Part 3 Special test methods for phenolic resins

Part 4 Special test methods for epoxy resins

Part 5 Special test methods for polyamide resins

Part 6 Special test methods for amino resins

Part 7 Special test methods for acrylic or vinyl acetate resins and emulsions

During the second revision, test methods originally covered in 2 to 16 and 17.8 of IS 354 : 1976 were also incorporated. Further, additional methods were introduced, including tests for color using the Gardner colour scale, viscosity measured with the Brookfield viscometer and Stormer viscometer, softening point determined via a capillary tube, non-volatile matter assessment, and flash point determination.

This revision has been taken up in order to bring out the standard in the latest style and format of the Indian Standards. Additionally, the following changes have been made to enhance precision, clarity and safety:

- a) Incorporation of alternative automated or instrumental test methods for various tests, such as using automated Krebs viscometers and Gardner colour scales. These changes aim to achieve more precise control and measurement of the specified requirements;
- b) Inclusion of various notes to improve clarity regarding the uses and objectives of various requirement, helping users understand and apply them effectively;
- c) Introduction of alternative reagents where previous reagents have been phased out due to their toxicity. For example, replacing benzene with safer alternatives like toluene and xylene;

d) Since, the identification of resins is primarily performed in educational institutes rather than in the industry therefore the methodology for identifying several resins specified in other parts of this series has been moved to an informative Annex A. This separation of information can help streamline the standard for industry use; and

e) References of Indian Standards have been updated wherever required

This standard (Part 1) prescribes the methods of sampling general test for resins (natural and synthetic) used in paints, enamels and varnishes.