भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG, NEW DELHI 110002

व्यापक परिचालन मसौदा

हमारा संदर्भ: सीईडी 04/टी-67 **08 नवंबर 2024**

तकनीकी समिति: इमारती चूना और जिप्सम उत्पाद विषय समिति, सीईडी 04

प्राप्तकर्ता:

क) सिविल इंजीनियरी विभाग परिषद्, सीईडीसी के सभी सदस्य
ख) इमारती चूना और जिप्सम उत्पाद विषय समिति, सीईडी 04 के सभी सदस्य
ग) रूचि रखने वाले अन्य निकाय

प्रिय महोदय/महोदया,

निम्नलिखित भारतीय मानक का मसौदा संलग्न है:

प्रलेख संख्या	शीर्षक
सीईडी 04 (26901)WC	**भवन निर्माण चूने का रख-रखाव और भंडारण — मार्गदर्शी सिद्धांत का भारतीय मानक मसौदा** [IS 14401 का *पहला* पुनरीक्षण] ICS 91.100

कृपया इस मानक के मसौदे का अवलोकन करें और अपनी सम्मतियॉ यह बताते हुए भेजे कि यदि यह मानक के रूप में प्रकाशित हो तो इस पर अमल करने में आपके व्यवसाय अथवा कारोबार में क्या कठिनाइयाँ आ सकती हैं ।

सम्मतियाँ भेजने की अंतिम तिथि : **08 दिसंबर 2024**

सम्मति यदि कोई हो तो कृपया अधोहस्ताक्षरी को उपरिलिखित पते पर संलग्न फोर्मेट में भेजें या **manoj@bis.gov.in** पर ईमेल कर दें ।

यदि कोई सम्मति प्राप्त नही होती है अथवा सम्मति में केवल भाषा सम्बन्धी त्रुटि हुई तो उपरोक्त प्रलेख को यथावत अंतिम रूप दिया जाएगा। यदि सम्मित तकनीकी प्रकृति की हुई विषय समिति के अध्यक्ष के परामर्श से अथवा उनकी इच्छा पर आगे की कार्यवाही के लिए विषय समिति को भेजे जाने के बाद प्रलेख को अंतिम रूप दे दिया जाएगा ।

यह प्रलेख भारतीय मानक ब्यूरो की वैबसाइट **www.bis.gov.in** पर भी उपलब्ध हैं।

धन्यवाद ।

भवदीय,

(द्वैपायन भद्र)
प्रमुख (सिविल इंजीनियरी)

संगलन : उपरिलिखित

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG, NEW DELHI 110002

DRAFT IN WIDE CIRCULATION

Our Ref: CED 04/T-67 **08 November 2024**

Technical Committee: Building Lime and Gypsum Products, Sectional Committee, CED 04

ADDRESSED TO:

a) All Members of Civil Engineering Division Council, CEDC
b) All Members of CED 04
c) All others interests.

Dear Sir/Madam,

Please find enclosed the following document:

Doc No.	Title
CED 04(26901)WC	**Draft Indian Standard** **Handling and Storage of Building Limes — Guidelines** (*First Revision* of IS 14401) ICS 91.100

Kindly examine the draft standard and forward your views stating any difficulties which you are likely to experience in your business or profession, if this is finally adopted as National Standard.

Last Date for Comments: **08 December 2024**

Comments if any, may please be made in the attached format and mailed to the undersigned at the above address or preferably through e-mail to **manoj@bis.gov.in**.

In case no comments are received or comments received are of editorial nature, you may kindly permit us to presume your approval for the above document as finalized. However, in case of comments of technical in nature are received then it may be finalized either in consultation with the Chairman, Sectional Committee or referred to the Sectional Committee for further necessary action if so desired by the Chairman, Sectional Committee.

The document is also hosted on BIS website www.bis.gov.in**.**

Thanking you,

Yours faithfully,

(**Dwaipayan Bhadra**)
Head (Civil Engineering)

Encl: As above

FORMAT FOR SENDING COMMENTS ON BIS DOCUMENTS

(Please use A-4 size sheet of paper only and type within fields indicated. Comments on each clause/sub-clause/table/fig etc. be started on a fresh box. Information in column 3 should include reasons for the comments and suggestions for modified working of the clauses when the existing text is found not acceptable. Adherence to this format facilitates Secretariat's work) {Please e-mail your comments to manoj@bis.gov.in}.

Doc. No.: **CED 04 (26901) WC**

Title: **Draft Indian Standard Handling and Storage of Building Limes — Guidelines** (*First Revision* of IS 14401) ICS 91.100

LAST DATE OF COMMENTS: **08/12/2024**

NAME OF THE COMMENTATOR/ORGANIZATION: _____

Sl. No.	Clause/Para/Table/ Figure No. Commented	Comments/Modified Wordings	Justification of the Proposed Change

BUREAU OF INDIAN STANDARDS

DRAFT FOR COMMENTS ONLY
(*Not to be reproduced without the permission of BIS or used as an Indian Standard*)

Draft Indian Standard

HANDLING AND STORAGE OF BUILDING LIMES — GUIDELINES

(*First Revision* of IS 14401)
ICS 91.100

Building Lime and Gypsum Products, Section Committee, CED 04	Last Date of Comments **08 December 2024**

FOREWORD

(*Formal Clauses will be added later*)

This standard is being formulated to provide guidance to the users in the handling and storage of building limes.

All building limes as defined in this standard are caustic alkalis in the presence of water and can cause chemical burns to the skin. In addition, when quicklime comes into contact with water a chemical reaction occurs which generates a considerable amount of heat. This reaction often occurs very rapidly and can be vigorous in character. The most violent reactions occur if quicklime is added to water without stirring to dissipate the heat generated, resulting in severe splasing of hot lime slurry, which can cause heat burns to the skin.

All building limes need to be handled with caution and necessary protective measures should be taken to minimize the possibility of discomfort or accident when handling building limes.

In all cases, prevention or adequate control of exposure should be achieved by measures other than personal protective equipment, so far as is reasonably practicable, in the light of the degree of exposure, circumstances of use of the substance, informed knowledge about its hazards and current technical developments.

This Standard was first formulated in 1996. This revision has been brought out to incorporate the modifications based on the experience gained in the use of this standard since its publication. Significant modifications incorporated in this revision are as follows:

a) Guidelines for storage of Lime Putty has been included along with its safety requirements,
b) Guidelines of transportation of building lime in bags and bulk has been included and
c) References to various Indian Standards have been updated.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Draft Indian Standard

HANDLING AND STORAGE OF BUILDING LIMES – GUIDELINES

(First Revision)

1 SCOPE

This standard covers the protective measures to be taken for handling and storage of building lime.

2 REFERENCES

The standards given below contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreement based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standard indicated below:

IS No.	*Title*
IS 4148 : 1989	Surgical rubber gloves – Specification (*first revision*)
IS 12254 : 2021	Polyvinylchloride (PVC) industrial boots – Specification (*second revision*)
IS 13695 : 1993	Fire safety in iron and steel industries – Code of practice
IS 14166 1994	Respiratory protective devices full-face masks – Specification

3 HANDLING

The following measures should be taken, while handling building limes for protecting the various parts of the body.

3.1 Eyes

The eyes are particularly vulnerable to damage. Under no circumstances should operatives be allowed to handle building limes or operate quicklime-slaking process without wearing goggles.

3.2 Mouth and Nose

For protection of mouth and nose respiratory protective equipment conforming to IS 14166 or any other equipment suitable for the purpose and of a type approved by the Health and Safety Executive may be used.

3.3 Face and Neck

Especially in warmer weather, the shaven parts of the face and neck are liable to be irritated by building lime dust. These parts should be protected with a barrier cream. A cloth worn around the neck will give additional protection.

3.4 Hands, Arms and Wrists

The hands should be protected by gloves with a tight fitting wristband conforming to IS 4148. Any exposed parts of the arms, hands and wrists should be protected with barrier cream.

3.5 Feet

Building lime should be prevented from reaching the feet to avoid burns of irritation. Gaiters or improvised leggings worn over the boot tops and bottom of the trousers in dry conditions, or oilskins worn over rubber boots as per IS 13695 or PVC boots as per IS 12254 in wet conditions will provide suitable protection.

4 FIRST AID TREATMENT

In case of an accident, while handling building lime the following measures should be immediately taken.

4.1 Building lime on the skin should be washed off without delay. If dust has been inhaled, the nose and throat should be thoroughly irrigated with water. It is essential to avoid inhaling water.

4.2 Building lime in the eye should be removed immediately. Speed is essential. Particles should be removed with extreme care using a cotton wool bud and irrigation with eyewash solution or gently flowing clean mains water should commence immediately and continue until medical attention can be obtained.

4.3 In all cases affecting the eye, or in any severe cases of contamination, the person should receive immediate medical attention.

4.4 Wherever there is the slightest danger of building time entering the eye it is advisable to have suitable eye irrigation bottles close to hand. The bottles should be of type, which contains sterile water or sterile saline solution in pre-packed containers. After treatment, used bottles should he discarded.

4.5 In all cases after first-aid treatment the patient should consult a qualified medical practitioner.

5 STORAGE

5.1 Storage of Hydrated Lime in Bags

5.1.1 Hydrated lime normally contains less than 1 percent of free moisture, when manufactured and this wilt not rise above this level when stored within the normal range of relative humidity. However, it absorbs carbon dioxide from the air and the rate of deterioration due to this cause is dependent upon the amount of air passing through the store. If air movement is reduced to a practical minimum, hydrated lime can be stored for up to six months without appreciable change. For this reason hydrated lime should be stored under cover in a cool dry place with minimum of air movement and exposure to combustion gases.

5.1.2 The ideal store is a brick or concrete building with a concrete floor, or a similar construction designed to eliminate draughts through walls, floor and roof. The store should not be heated, since this would create draughts.

5.1.3 Bags of hydrated lime should be stored flat and away from walls if condensation or moisture on the walls is likely to occur. Care must be taken to ensure that stocks are rotated as very old stock will eventually deteriorate to the point of being unsuitable for many applications.

5.1.4 If hydrated lime is stored, temporarily or otherwise, in a general store, care should be taken to ensure that it does not come into contact with other chemicals with, which it might react. Since this product is fully hydrated, no heat is evolved when water is added to it, and there is, therefore, no fire risk during storage.

5.2 Storage of Quicklime in Bags

5.2.1 The storage conditions described for hydrated lime are applicable to quicklime also. Quicklime should be stored to avoid any accidental contact with water, which could enter the bags, for instance, at the point where they are sealed after packing. Since the product is not hydrated, any water entering the bags will cause expansion up to 2.5 times and the heat generated may cause a fire. Therefore, quicklime should not be stored with, or close to, flammable materials.

5.2.2 Quicklime may be stored in plastic bags under good storage conditions for up to 3 months without significant deterioration.

5.3 Storage of Lime Putty in Bags/Buckets

Lime putty should be stored in a shaded area to protect it from direct sunlight and extreme temperatures. Containers used for storing lime putty should be tightly sealed to prevent moisture loss and maintain the desired consistency. The integrity of the containers should be checked regularly to ensure that they are not damaged or leaking. Lime putty can be stored in sealed bags or plastic buckets to retain water and prevent drying out. The quality of the lime putty tends to improve over time, unlike hydrated lime or quicklime, which may degrade with prolonged storage. Regular inspection of stored lime putty is recommended to ensure that it remains in good condition and is suitable for use in construction applications.

6 TRANSPORTATION

6.1 Building lime should be transported in durable, moisture-resistant bags (typically made from laminated plastic or treated paper) or containers as per **5**. Overloading of bags or container should be avoided to prevent rupture. Vehicles used to transport lime should be dry and free from contaminants, any moisture can react with quicklime, potentially causing safety hazards like heat generation. In open trucks, bags should be covered with a waterproof tarpaulin or similar material to protect from rain, snow, or humidity during transit. Lime must be completely protected from water exposure. Since lime can release dust, vehicles transporting lime should be well ventilated. This prevents dust buildup and reduces risks of exposure for those involved in loading and unloading.

6.2 For bulk transportation pneumatic tankers are used, which are specially designed for transporting dry powders, this helps prevent exposure to air and moisture. Pneumatic systems used in bulk transport should include filters to minimize lime dust escape, ensuring worker safety and environmental protection.

6.3 Care should be taken during transportation that the temperature should be below 55°C, as lime can decompose at higher temperatures, and high temperature can exacerbate the reaction of quicklime with moisture.