



ADDENDA

**ANSI/ASHRAE Addendum c to
ANSI/ASHRAE Standard 15-2016**

Safety Standard for Refrigeration Systems

Approved by the ASHRAE Standards Committee on June 23, 2017; by the ASHRAE Tech Council on June 28, 2017; and by the American National Standards Institute on June 29, 2017.

This addendum was approved by a Standing Standard Project Committee (SSPC) for which the Standards Committee has established a documented program for regular publication of addenda or revisions, including procedures for timely, documented, consensus action on requests for change to any part of the standard. The change submittal form, instructions, and deadlines may be obtained in electronic form from the ASHRAE website (www.ashrae.org) or in paper form from the Senior Manager of Standards.

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ASHRAE Standing Standard Project Committee 15
Cognizant TCs: 101, Custom Engineered Refrigeration Systems,
and 9.1, Large Building Air-Conditioning Systems
SPLS Liaison: Drury B. Crawley

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ASHRAE obtains consensus through participation of its national and international members, associated societies, and public review.

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FOREWORD

ASHRAE Standard 34-2010 revised the toxicity classification definition to use "Occupational Exposure Limit" (OEL) in place of "Threshold Limit Value-Time-Weighted Average" (TLV-TWA) and added OEL values to the refrigerant tables.

Addendum c harmonizes ASHRAE Standard 15 with Standard 34 to use OEL values as the refrigerant detector set point for refrigerating machinery rooms to actuate an alarm and mechanical ventilation.

Note: In this addendum, changes to the current standard are indicated in the text by underlining (for additions) and ~~striking through~~ (for deletions) unless the instructions specifically mention some other means of indicating the changes.

Addendum c to Standard 15-2016

Modify Section 3 as shown.

3. DEFINITIONS

lower flammability limit (LFL): the minimum concentration of refrigerant that propagates a flame through a homogeneous mixture of refrigerant and air

refrigerant concentration limit (RCL): the refrigerant concentration limit in air, determined in accordance with ANSI/ASHRAE Standard 34¹ and intended to reduce the risks of acute toxicity, asphyxiation, and flammability hazards in normally occupied, enclosed spaces.

threshold limit value time-weighted average (TLV-TWA)[†]: the refrigerant concentration in air for a normal eight-hour workday and a 40-hour workweek to which repeated exposure, day after day, will not cause an adverse effect in most persons.

lower flammability limit (LFL): see definition in ANSI/ASHRAE Standard 34¹.

occupational exposure limit (OEL): see definition in ANSI/ASHRAE Standard 34¹.

refrigerant concentration limit (RCL): see definition in ANSI/ASHRAE Standard 34¹.

Modify Section 8 as shown.

8. INSTALLATION RESTRICTIONS

[. . .]

8.11 Refrigerating Machinery Room, General Requirements. [. . .]

[†] TLV[®] is a registered trademark of the American Conference of Governmental Industrial Hygienists (ACGIH[®]).

8.11.2.1 Each refrigerating machinery room shall contain a detector, located in an area where refrigerant from a leak will concentrate, that actuates an alarm and mechanical ventilation in accordance with Section 8.11.4 at a valueset point not greater than the corresponding TLV-TWA (or toxicity measure consistent therewith) Occupational Exposure Limit (OEL) value as published in ASHRAE Standard 34. For refrigerants that do not have a published OEL value in Standard 34, a set point determined in accordance with the OEL as defined by Standard 34 shall be approved by the AHJ. The alarm shall announce visual and audible alarms inside the refrigerating machinery room and outside each entrance to the refrigerating machinery room. The alarms required in this section shall be of the manual reset type with the reset located inside the refrigerating machinery room. Alarms set at other levels (such as IDLH) and automatic reset alarms are permitted in addition to those required by this section. The meaning of each alarm shall be clearly marked by signage near the annunciators.

Modify Informative Appendix E as shown.

INFORMATIVE APPENDIX E EMERGENCIES IN REFRIGERATING MACHINERY ROOMS

[. . .]

E1. ALARM LEVELS

A refrigerant level above the TLV-TWA OEL activates the alarms required by Section 8.11.2.1. If personnel working in the refrigerating machinery room are not provided with and trained to use respiratory protection equipment appropriate for the refrigerant (such as canister respirators or self-contained breathing apparatus), they must leave the room immediately. Presence of refrigerant above the TLV-TWA OEL does not by itself signal an emergency; many routine service operations can create such levels. Local or national regulations often prescribe that steps be taken to protect the health and safety of personnel working in the machinery room when refrigerant concentrations rise above the TLV-TWA OEL.

[. . .]

E2. ALTERNATE REFRIGERANT LEVEL MEASUREMENTS

The required alarms signal only that refrigerant was detected at concentrations above the TLV-TWA OEL. Some facilities may find it useful to have multiple levels of alarms or to provide an instrument that indicates the actual refrigerant level (digital readout in parts per million of refrigerant). Selecting proper respiratory protection for technicians or other responders, as mentioned above, is one reason. This is perfectly acceptable, provided that the additional alarms or indicators are clearly distinguished from the main alarm. Bystanders should not be confused by the alarm arrangements.

[. . .]

E4. EXAMPLE EMERGENCY PROCEDURES

As an example (and there are many other possibilities), consider a facility that wishes to use its own technicians to handle

minor problems in the refrigerating machinery room. The facility

- a. provides the refrigerant alarm required by Section 8.11.2.1, along with signage warning “Authorized Personnel Only. Stay Out When Refrigerant Alarm Sounds; Call Facilities Management Immediately”; This alarm triggers at the ~~TLV-TWA~~ OEL.

[. . .]

POLICY STATEMENT DEFINING ASHRAE'S CONCERN FOR THE ENVIRONMENTAL IMPACT OF ITS ACTIVITIES

ASHRAE is concerned with the impact of its members' activities on both the indoor and outdoor environment. ASHRAE's members will strive to minimize any possible deleterious effect on the indoor and outdoor environment of the systems and components in their responsibility while maximizing the beneficial effects these systems provide, consistent with accepted Standards and the practical state of the art.

ASHRAE's short-range goal is to ensure that the systems and components within its scope do not impact the indoor and outdoor environment to a greater extent than specified by the Standards and Guidelines as established by itself and other responsible bodies.

As an ongoing goal, ASHRAE will, through its Standards Committee and extensive Technical Committee structure, continue to generate up-to-date Standards and Guidelines where appropriate and adopt, recommend, and promote those new and revised Standards developed by other responsible organizations.

Through its *Handbook*, appropriate chapters will contain up-to-date Standards and design considerations as the material is systematically revised.

ASHRAE will take the lead with respect to dissemination of environmental information of its primary interest and will seek out and disseminate information from other responsible organizations that is pertinent, as guides to updating Standards and Guidelines.

The effects of the design and selection of equipment and systems will be considered within the scope of the system's intended use and expected misuse. The disposal of hazardous materials, if any, will also be considered.

ASHRAE's primary concern for environmental impact will be at the site where equipment within ASHRAE's scope operates. However, energy source selection and the possible environmental impact due to the energy source and energy transportation will be considered where possible. Recommendations concerning energy source selection should be made by its members.

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