

<b>STN</b>	<b>Pracovná expozícia</b> <b>Meranie inhalačnej expozície chemickým látkam</b> <b>Stratégia na skúšanie zhody s limitnými</b> <b>hodnotami pracovnej expozície</b>	<b>STN</b> <b>EN 689</b>  83 3610
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Workplace exposure - Measurement of exposure by inhalation to chemical agents - Strategy for testing compliance with occupational exposure limit values

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

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## Workplace exposure - Measurement of exposure by inhalation to chemical agents - Strategy for testing compliance with occupational exposure limit values

Exposition sur les lieux de travail - Mesurage de l'exposition par inhalation d'agents chimiques - Stratégie pour vérifier la conformité à des valeurs limites d'exposition professionnelle

Exposition am Arbeitsplatz - Messung der Exposition durch Einatmung chemischer Arbeitsstoffe - Strategie zur Überprüfung der Einhaltung von Arbeitsplatzgrenzwerten

This European Standard was approved by CEN on 2 March 2018.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
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**EN 689:2018 (E)**

<b>Contents</b>	<b>Page</b>
European foreword.....	4
Introduction .....	5
1 Scope.....	6
2 Normative references.....	6
3 Terms and definitions and abbreviations.....	6
3.1 Terms and definitions .....	6
3.2 Abbreviations .....	7
4 General.....	7
5 Occupational exposure assessment.....	9
5.1 Basic characterization .....	9
5.1.1 General.....	9
5.1.2 Identification of chemical agents and other information required.....	9
5.1.3 Review of workplace factors .....	10
5.1.4 Estimation of exposure .....	10
5.1.5 Decisions .....	11
5.2 Sampling strategy.....	11
5.2.1 Constitution of Similar Exposure Groups (SEGs).....	11
5.2.2 Specifying the measuring procedure .....	12
5.3 Performing exposure measurements.....	13
5.4 Validation of results and SEGs.....	13
5.4.1 General.....	13
5.4.2 Validation of measurement results .....	13
5.4.3 Validation of SEGs .....	14
5.5 Comparison of results with OELVs.....	14
5.5.1 General.....	14
5.5.2 Preliminary test.....	15
5.5.3 Statistical test .....	15
6 Report.....	16
7 Periodic reassessment .....	16
Annex A (informative) Assessment of exposure .....	18
A.1 General.....	18
A.2 Workplaces with constant conditions .....	20
A.3 Shortened exposure at workplaces with constant working conditions.....	20
A.4 Workplaces involving occasional exposure .....	20
A.5 Stationary workplaces with irregular exposure.....	21
A.6 Workers who move from a workplace to another with irregular exposure .....	21
A.7 Workplaces with unpredictable, constantly changing exposure.....	22
A.8 Outdoor workplaces.....	22
A.9 Underground workplaces .....	22

<b>Annex B (informative) Occupational exposure limit values for compliance testing</b> .....	<b>24</b>
<b>Annex C (informative) Simultaneous workplace exposure to several chemical agents</b> .....	<b>26</b>
<b>C.1 General</b> .....	<b>26</b>
<b>C.2 Tier 1: Exposure index (<math>I_E</math>)</b> .....	<b>26</b>
<b>C.3 Tier 2: Additive effect exposure index (<math>I_{AE}</math>)</b> .....	<b>27</b>
<b>C.4 Other approaches</b> .....	<b>28</b>
<b>Annex D (informative) Exposure profile and sampling duration</b> .....	<b>29</b>
<b>D.1 General</b> .....	<b>29</b>
<b>D.2 Measurement for testing compliance with 8 h- OELV</b> .....	<b>29</b>
<b>D.3 Measurement for testing compliance with short-term limit value</b> .....	<b>34</b>
<b>Annex E (informative) Check of exposure measurements distribution, and identification of exceptional exposure within the SEG</b> .....	<b>35</b>
<b>E.1 General</b> .....	<b>35</b>
<b>E.2 Graphical method</b> .....	<b>35</b>
<b>E.2.1 Principle</b> .....	<b>35</b>
<b>E.2.2 Plotting</b> .....	<b>36</b>
<b>E.2.3 Example</b> .....	<b>36</b>
<b>E.2.4 Examples of SEGs requiring further consideration</b> .....	<b>37</b>
<b>E.2.4.1 General</b> .....	<b>37</b>
<b>E.2.4.2 SEG consisting of two groups</b> .....	<b>38</b>
<b>E.2.4.3 Some individuals with exceptional exposure</b> .....	<b>39</b>
<b>E.2.4.4 Distributions appearing to be not lognormal</b> .....	<b>40</b>
<b>E.3 Statistical methods for the validation of SEGs</b> .....	<b>41</b>
<b>Annex F (informative) Testing compliance with OELVs</b> .....	<b>42</b>
<b>F.1 General</b> .....	<b>42</b>
<b>F.2 SEG compliance test for at least six exposure measurements</b> .....	<b>42</b>
<b>F.3 Decision</b> .....	<b>43</b>
<b>Annex G (informative) Exposure calculation with a work shift longer than 8h</b> .....	<b>45</b>
<b>Annex H (informative) Exposure below the limit of quantification</b> .....	<b>46</b>
<b>H.1 General</b> .....	<b>46</b>
<b>H.2 Principle</b> .....	<b>46</b>
<b>H.3 Example</b> .....	<b>46</b>
<b>H.4 Uncertainty</b> .....	<b>49</b>
<b>H.5 Software</b> .....	<b>50</b>
<b>Annex I (informative) Interval for periodic measurements</b> .....	<b>51</b>
<b>Bibliography</b> .....	<b>53</b>

**EN 689:2018 (E)****European foreword**

This document (EN 689:2018) has been prepared by Technical Committee CEN/TC 137 “Assessment of workplace exposure to chemical and biological agents”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2018, and conflicting national standards shall be withdrawn at the latest by November 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 689:1995.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## **Introduction**

This European Standard deals with the measurement of exposure to chemical agents in workplace atmospheres, and in particular with measurement strategy for comparing workers' exposure by inhalation with occupational exposure limit values (OELVs). Other parts of management of exposure of workers are not dealt with in detail in this European Standard.

Within this European Standard, compliance means that workers' time weighted average workplace exposure is below an OELV with a corresponding reference period. OELVs include legal values and other numerical criteria (see Annex B).

Representative measurement of workplace exposure to chemical agents is difficult, because of the variability of exposure. Processes and products affecting exposure are numerous. Different workplace conditions can correspond to different generation rates, can involve a variety of chemical agents and can therefore present specific exposure conditions. Exposure can be affected by the distance of the exposed workers from emission sources; and parameters such as emission intensity, ventilation, climatic conditions, seasonal variations and the controls applied can also have a very marked influence. The spatial and temporal variabilities of exposure conditions are further enhanced by workers' practices and activities themselves.

The sampling equipment introduces its own limitations, and the analytical steps add further difficulties and uncertainties.

This European Standard is applicable for measuring procedures that fulfil the requirements of EN 482. If a measuring procedure does not fulfil these requirements some parts of the procedure described in this European Standard cannot be applied.

To assess the exposure of workers to chemicals and to state with certainty that it does not exceed the OELVs (short-term or long-term) would require measurement of the exposure of every worker for every working day. Unfortunately while this approach is possible for some agents such as ionizing radiation, it is not feasible or practical for many chemical agents due to limitations of the measurement techniques and costs.

The strategy described in this European Standard gives a procedure for the employer or other stakeholders to overcome the problem of variability and to use a relatively small number of measurements to demonstrate with a high degree of confidence that workers are unlikely to be exposed to concentrations exceeding the OELVs. To reduce the number of exposure measurements, and therefore the cost of assessment, personal air samples are collected among workers within similar exposure groups (SEGs). A single measurement or even several measurements below the limit value can be insufficient to reliably demonstrate compliance without using a statistical test like the one proposed in this European Standard.

Respiratory protective equipment (RPE) is used to reduce the amount of the chemical agent that is inhaled by the worker. However, this European Standard does not take into account the use and effectiveness of RPE in testing compliance with the OELV.

Before any measurements are performed, it is essential for an appraiser to conduct a basic characterization in order to collect relevant information on workplace factors, and the available information on exposure in the workplace concerned. This includes information on variation of exposure with time of day and season of the year, so that the measurement is representative.

If the basic characterization shows that exposure is probably higher than the OELV, then it is recommended to reduce exposure by risk management measures (RMM) before measurements are planned for compliance testing.

**EN 689:2018 (E)****1 Scope**

This European Standard specifies a strategy to perform representative measurements of exposure by inhalation to chemical agents in order to demonstrate the compliance with occupational exposure limit values (OELVs).

This European Standard is not applicable to OELVs with reference periods less than 15 min.

**2 Normative references**

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 482, *Workplace atmospheres — General requirements for the performance of procedures for the measurement of chemical agents*

EN 1540, *Workplace exposure - Terminology*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**