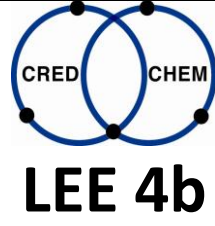
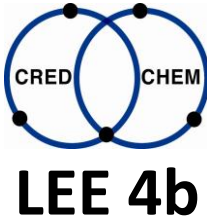


<b>Field of action</b>	<b>Working in the laboratory</b>					
<b>Learning outcome unit</b>	<b>4b - Gravimetric analysis of substances</b>					
<b>EQF level</b>	<b>Competence level A:</b> EQF level 3 <b>Competence level B:</b> EQF level 4 <b>Competence level C:</b> EQF level 5					
<b>Relations to national qualifications</b>	<b>BG</b>	<b>CZ</b>	<b>DE</b>	<b>IT</b>	<b>SK</b>	
		Chemical technician, chemical laboratory technician	Chemical laboratory technician		Chemical technician, chemical laboratory technician, chemical technology modeller, chemical laboratory assistant	
<b>Learning outcomes</b>						
<b>Competence<sup>1</sup></b>		<b>Skills</b>		<b>Knowledge</b>		
<b><u>Competence level A</u></b> <b>(EQF level 3)</b> <ul style="list-style-type: none"> <li>- analyses substances gravimetrically by using the standard methods and adapts these methods to the given conditions</li> </ul>		<ul style="list-style-type: none"> <li>- accepts orders for gravimetric analysis of substances and plans all further processing steps until supplying the result</li> <li>- selects methods, respective laboratory equipment and necessary chemicals (solvents...) depending on the property/structure of the substances and handles them accurately, carefully and expertly</li> <li>- evaluates results and calculates respective values</li> <li>- prepares and evaluates the analysis expertly (corresponds to competence of learning outcome 1 and 2)</li> </ul>		<ul style="list-style-type: none"> <li>- knows substances (properties, structure, R/S statements)</li> <li>- knows respective methods (knows steps of action)</li> <li>- knows respective equipment/ apparatuses and their functioning/ operation</li> </ul>		
<b><u>Competence level B:</u></b> <b>(EQF level 4)</b> <ul style="list-style-type: none"> <li>- deals with problems typical for the methods</li> </ul>		<ul style="list-style-type: none"> <li>- analyses the problem, develops solution approaches by applying specialist knowledge and decides how to solve the problem</li> <li>- reflects on whether the problem was actually solved</li> </ul>		<ul style="list-style-type: none"> <li>- knows dependence of values to be measured on environment conditions (temperature, pressure...)</li> <li>- knows reactions which the methods are based on</li> </ul>		
<b><u>Competence level C:</u></b> <b>(EQF level 5)</b> <ul style="list-style-type: none"> <li>- optimises methods according to context in cooperation with the team</li> </ul>		<ul style="list-style-type: none"> <li>- works as part of the team, is actively involved in the work process and thus brings the work process forward</li> <li>- communicates with others about scientific and technological content (application of specialist knowledge) and about the work process</li> </ul>		<ul style="list-style-type: none"> <li>- knows structural characteristics of a material which are responsible for its properties</li> <li>- knows relationship between measurand (mass) and determinant (i.e. concentration)</li> <li>- knows relationship between the fundamental chemical principle and the practical use of gravimetry</li> </ul>		

<sup>1</sup> The competence levels build upon each other.

<b>Field of action</b>	<b>Working in the laboratory</b>				
<b>Learning outcome unit</b>	<b>4b - Gravimetric analysis of substances</b>				
<b>Countries</b>	<b>BG</b>	<b>CZ</b>	<b>DE</b>	<b>IT</b>	<b>SK</b>
<b>Which CREDCHEM learning place offers the learning outcome unit?</b>		Technical School Valasske Mezirici	Saxon Education Company for Environmental Protection and Chemical Occupations Dresden ltd.		Secondary Technical School Novaky, Secondary Technical School Bratislava
<b>How many learners can be admitted?</b>		3	3-4		10
<b>At which competence level is the learning outcome unit offered?</b>		A, B	A		A, B, C
<b>In which language is the mobility taught?</b>		English	English/German		English/German
<b>Which methods are used?</b>	Gravimetry				
<b>The following occupational tasks<sup>2</sup> (which can also be used for imparting the learning outcomes) have been exemplarily analysed in preparing the LEE:</b>					
Gravimetric determination of ash					
Gravimetric determination of margarine					
Gravimetric determination of calcium ions					
Gravimetric determination of iron ions					
<b>The following examination tasks were designed for the competence levels indicated:</b>					<b>Competence level</b>
Gravimetric determination of margarine					A, B, C
Gravimetric determination of calcium ions					A, B, C

<sup>2</sup> Occupational and examination tasks can be downloaded at [www.credchem.eu](http://www.credchem.eu).