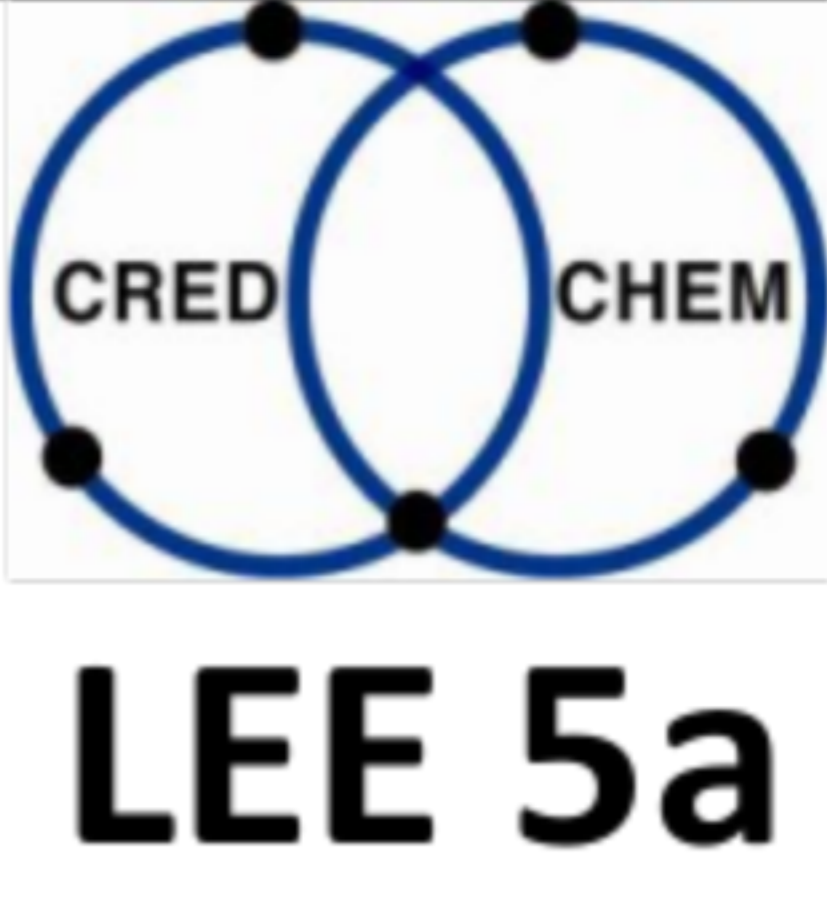
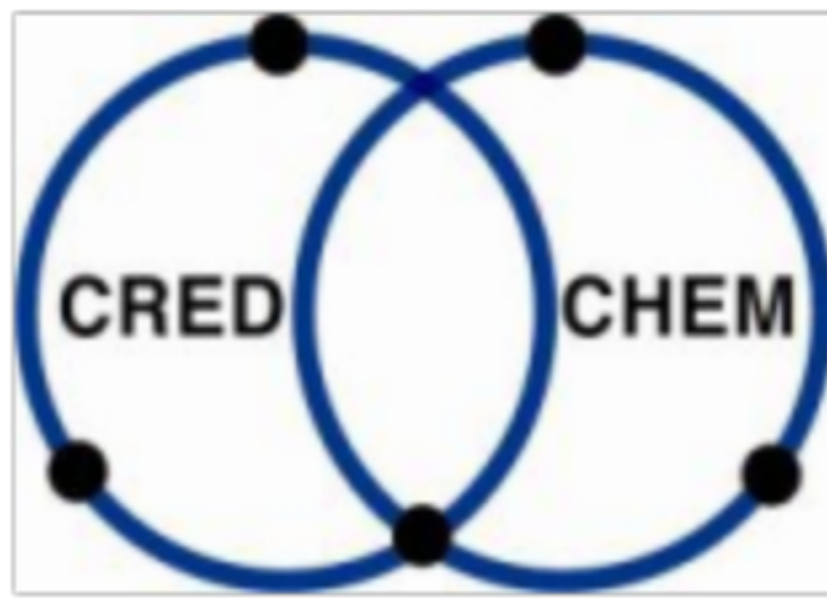


Field of action	Working in the laboratory				
Learning outcome unit	5a - Chromatographically separating and analysing substances (thin layer, paper, column (/ion) chromatography)				
EQF level	Competence level A: EQF level 3 Competence level B: EQF level 4 Competence level C: EQF level 5				
Relations to national qualifications	BG	CZ	DE	IT	SK
			Chemical laboratory technician	Biochemical technician	Chemical technician, chemical laboratory technician, chemical technology modeller
Learning outcomes					
Competence¹		Skills		Knowledge	
Competence level A (EQF level 3) - analyses substances in mixtures chromatographically by using the standard methods (thin layer, paper and column chromatography) and adapts these methods to the given conditions		- accepts orders for chromatographically separating and analysing substances and plans all further processing steps until supplying the result - selects methods, respective laboratory equipment and necessary chemicals (solvents...) depending on the property/structure of the substances and handles them accurately, carefully and expertly - evaluates results and calculates respective values - prepares and evaluates the analysis expertly (corresponds to competence of learning outcome 1 and 2)		- knows substances (properties, structure, R/S statements) - knows respective methods (knows steps of action) - knows respective equipment/ apparatuses and their functioning/ operation	
Competence level B: (EQF level 4) - deals with problems typical for the methods		- analyses the problem, develops solution approaches by applying specialist knowledge and decides how to solve the problem - reflects on whether the problem was actually solved		- knows dependence of values to be measured on environment conditions (temperature, pressure...) - knows reactions which the methods are based on	
Competence level C: (EQF level 5) - optimises methods according to context in cooperation with the team		- works as part of the team, is actively involved in the work process and thus brings the work process forward - communicates with others about scientific and technological content (application of specialist knowledge) and about the work process		- knows structural characteristics of a material which are responsible for its properties - knows relationship between measurand (retention time, peak height/area) and determinant (substance identification, substance concentration) - knows relationship between the fundamental analytical principle and the substance identification	

¹ The competence levels build upon each other.

Field of action	Working in the laboratory					 LEE 5a
Learning outcome unit	5a - Chromatographically separating and analysing substances (thin layer, paper, column (/ion) chromatography)					
Countries	BG	CZ	DE	IT	SK	
Which CREDCHEM learning place offers the learning outcome unit?			Saxon Education Company for Environmental Protection and Chemical Occupations Dresden Ltd.	ITAS Scalcerle	Secondary Technical School Novaky	
How many learners can be admitted?			3-4	12	5	
At which competence level is the learning outcome unit offered?			A, B	A, B	A	
In which language is the mobility taught?			English/German	English	English/German	
Which methods are used?	Thin layer chromatography Paper chromatography Column chromatography					
The following occupational tasks² (which can also be used for imparting the learning outcomes) have been exemplarily analysed in preparing the LEE:						
Determination of chloride						
Thin layer chromatography with p-aminophenol						
The following examination tasks were designed for the competence levels indicated:					Competence level	
Thin layer chromatography with p-aminophenol					A, B, C	

² Occupational and examination tasks can be downloaded at www.credchem.eu.