

P31. NEW CHEMICAL ANALYSIS METHODS

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Biocidal products are those that are intended to destroy, render harmless, prevent the action of, or otherwise exert a controlling effect on any harmful organism by chemical or biological means. They are preparations that containing one or more active substance and classified in 22 product types [1]. The four main groups are disinfectants, general biocidal products, preservatives and biocidal products used for pest control. Classifications according to chemical functional groups would be more appropriate if it is evaluated with active materials and their analysis. These chemical functional groups are phenolic, iodised, nitrogenous compounds, quaternary ammonium compounds, amine-based compounds, organometallics, organosulfurs, aldehydes, chloroisocyanurates, halogenated compounds, peroxigens, alcohols and others. The analytical methods are used to test compliance with the declaration of the products that will be presented to the user. Therefore physical and chemical analysis is carried out for the active ingredient.

Fast, accurate and reproducible results can be obtained by new chemical analysis methods. Several methods can be used according to the characteristics of the functional groups of the active substance. Chromatographic, spectroscopic, titrimetric, enzymatic methods are the frequently using in the laboratories. The investigation of the presence of any other active ingredients in a microbiologically active product is the advantageous of the new analysis techniques. Chemical compounds library application of the analysis systems could be very useful for this investigation. Target or suspected active ingredients can be detected by using High Resolution Mass Spectrometry (HR-MS) without any reference material. Absolute confirmation could be realized by MS/MS techniques. In order to scan the whole polarity range of the active ingredients in a product may require the use of GC and LC [2]. Biocidal products that include metals could be scanned using atomic spectroscopy.

It is reported that there are approximately 350 active biocidal substances and 50000 products [3]. These products need to be analysed reliably. Validation of analytical methods and instruments is very important they have to pass from performance verification tests. These are valid for new invented test systems [4].

1. <http://echa.europa.eu/web/guest/information-on-chemicals/biocidal-active-substances>

2. <http://www.epa.gov/pesticides/methods/rammethods/ramtr2z.htm#Tr>

3. <http://www.pan-germany.org/gbr.html>

4. CIPAC/4105/R Guidelines For The Design Of Chromatographic Analytical Methods Intended For CIPAC Collaborative Study