Work Package 5- EU Common Entry Gate (EU-CEG) data and laboratory capacity

WP5 5.3

Prepared by IRFMN
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JATC 2 JOINT ACTION ON TOBACCO CONTROL

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Version	Date of creation	Title	Handling
1	11 March 2024	Questionnaire draft	internal
2	14 March 2024	Questionnaire draft	WP 5 coordinator
3	30 April 2024	Questionnaire sent to potential participants	independent EU TobLabNet laboratories
4	23May 2024	WP5 Lab survey data analysis	Internal draft
5	31 May 2024	WP5 Lab survey data analysis	WP 5 coordinator
6	5 July 2024	WP5 Lab survey data analysis	WP 5 coordinator
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1. Background

Laboratory measurements are essential for effective application of various provisions of Directive 2014/40/EU of the European Parliament and of the Council of 3 April 2014 (referred as Tobacco Products Directive, TPD, in following text). In particular, according to Article 4, the competent authorities (CA) of all the European Union (EU) Member States (MS) "shall communicate to the European Commission a list of approved laboratories, specifying the criteria used for approval and the methods of monitoring applied, and shall update that list whenever any change is made". The independent laboratories should verify the tar, nicotine and carbon monoxide (TNCO) emission levels of cigarettes (using ISO standards). The TPD requires that these laboratories are independent. Therefore, they "shall not be owned or controlled directly or indirectly by the tobacco industry" and "the verification process should be protected from tobacco industry influence".

In order to map the current status quo of EU MS laboratories performing analyses on tobacco and e- cigarettes, and therefore to better understand the laboratory capacity and requirements, the availability of specific operating procedures or protocols and the independency of laboratories from the tobacco industry, we prepared a structured questionnaire to be filled by various laboratories.

In this work we present an update of the previous survey performed under JATC 1.

2. Methodology

A simplified questionnaire was designed to collect from various Laboratories in Europe information on the current state-of-the-art of the verification processes, including laboratory information and verification activities.

The specific aim of this survey is to collect information on:

- the presence, activities, capacity, analysis requirements, protocols and independence from the tobacco industry of laboratories within EU;
- protocols for testing the ingredients and emissions of cigarettes and electronic cigarettes.

The survey was conducted through e-survey platform among laboratories identified by TobLabNet contact list and/or EU-CEG. The full questionnaire is reported in Annex I.

A summary table on instrumentation used by different laboratories, analysis on cigarettes and e-cigarettes is reported in Annex II, Annex III and Annex IV respectively.

3. Results

We received 20 responses recorded in 14 countries. The laboratories that responded are divided into:

- 10 laboratories perform analysis on cigarettes;
- 18 laboratories perform analysis on e-cigarettes, herbal products and novel tobacco products.

3.1 Laboratory specifications

The first specific section of the questionnaire included 28 questions and contained general questions about the laboratory (year of construction and laboratory surface, internal verification systems, number of instruments and laboratory independence from industry, staff members, number of smoking and vaping machine). The main results of this section have been summarized in the graphs below.

Figure 1. Results, expressed in percentage, to the questions concerning the year of construction / renovation of the laboratory and the overall area dedicated.

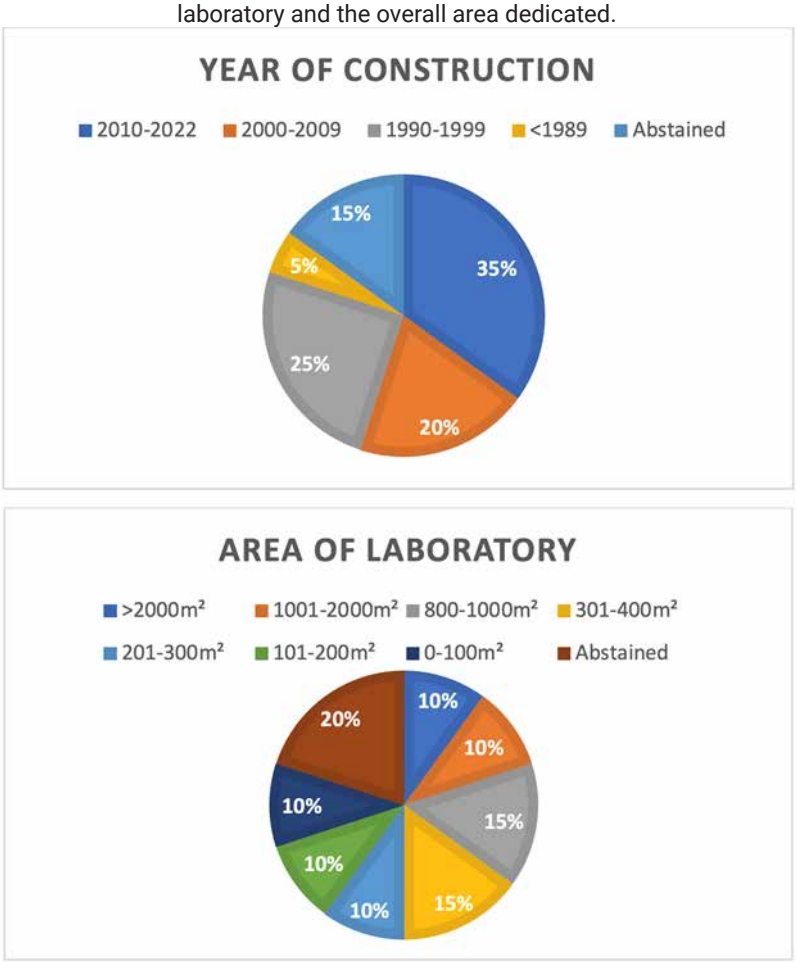
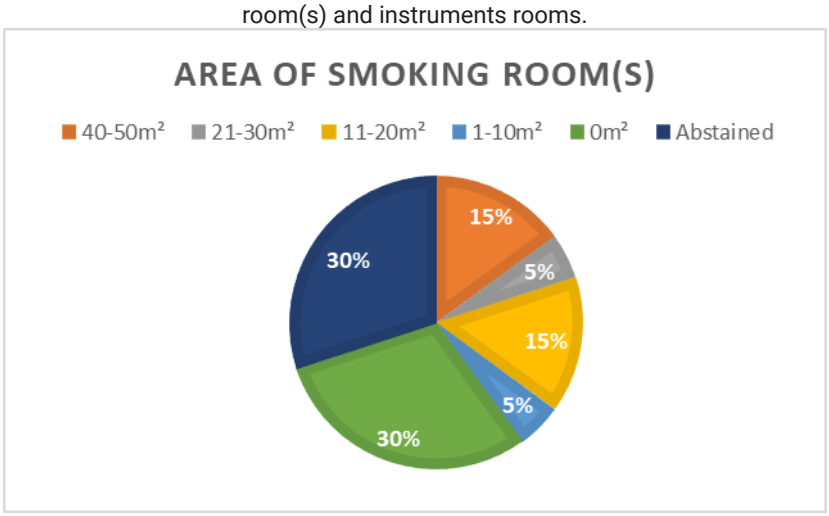


Figure 2. Results, expressed in percentage, to the questions concerning the total area of laboratory dedicated to smoking room(s) and instruments rooms.



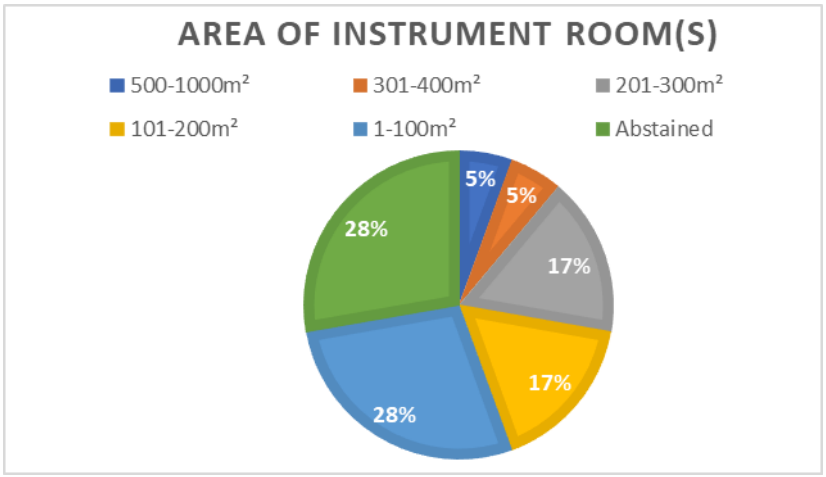


Figure 3. Results, expressed in percentage, to the questions concerning the Laboratory Information Technology System and independency from tobacco industry and e-cigarettes industry of laboratories.

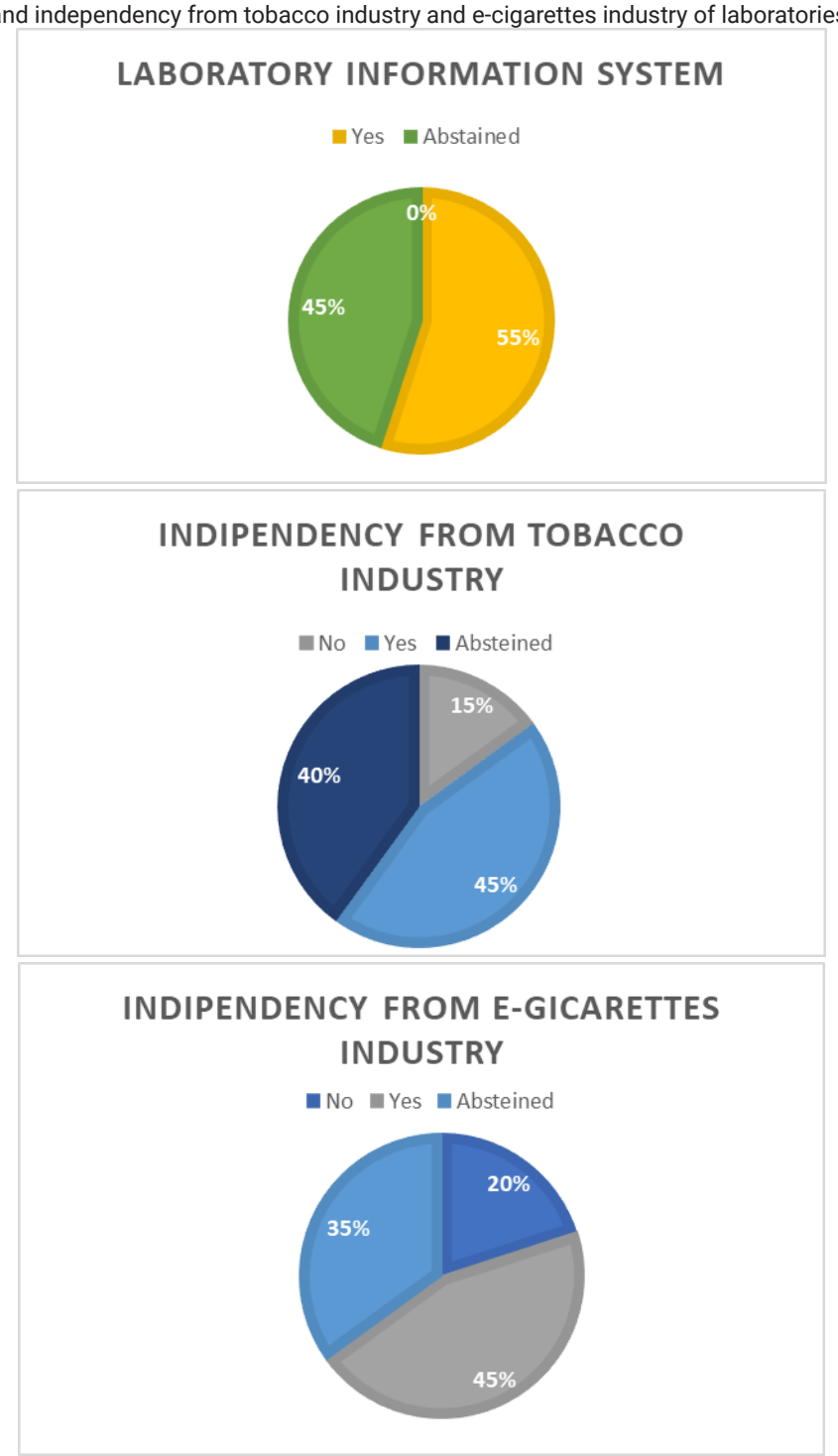
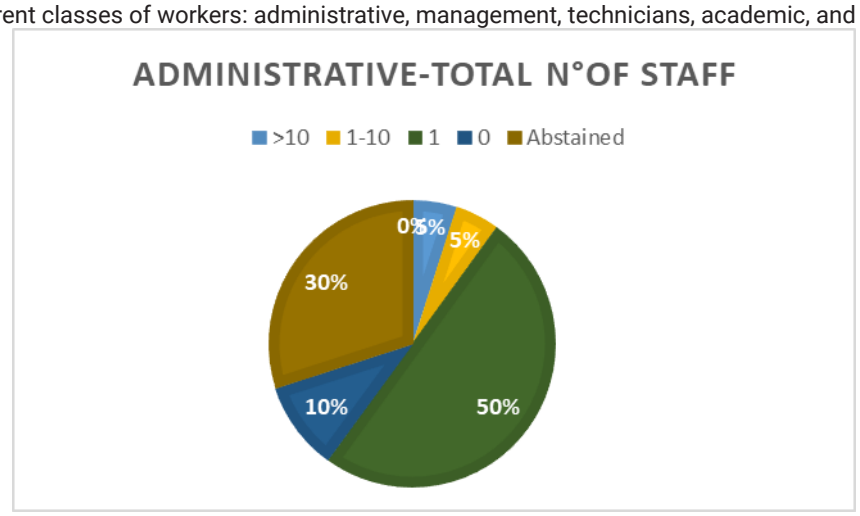
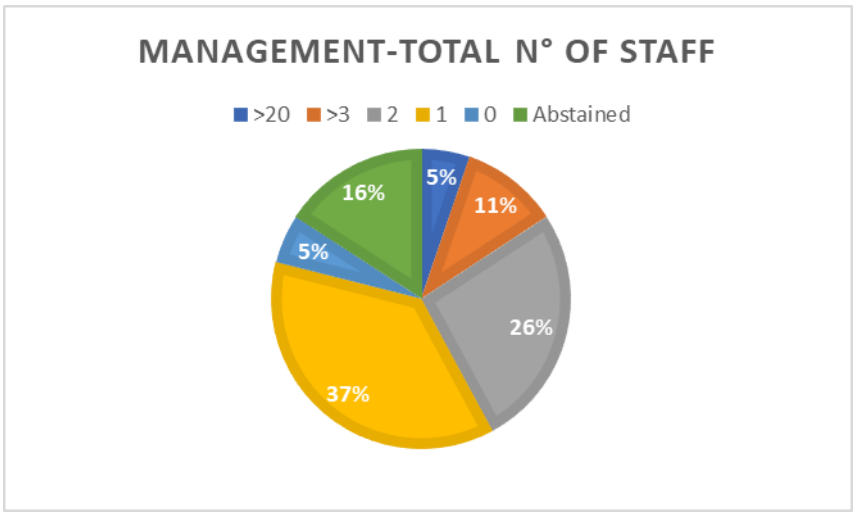
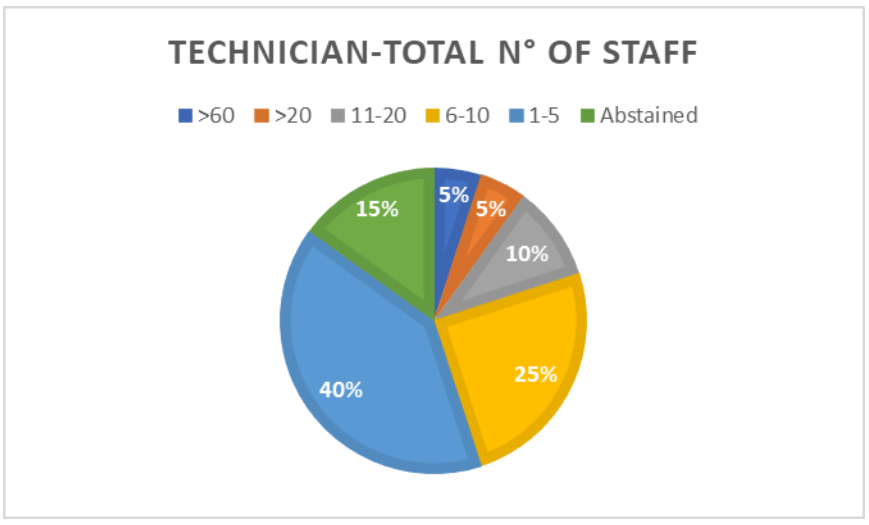
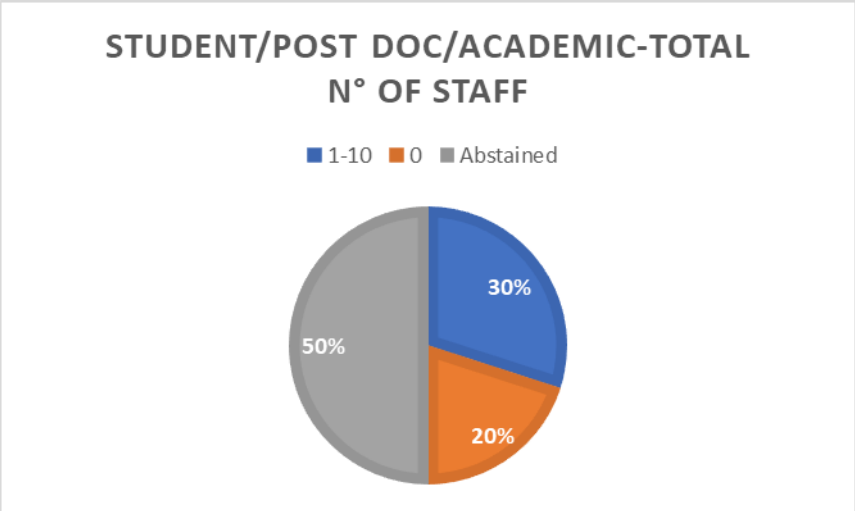


Figure 4. Results, expressed in percentage, to the questions about the composition of laboratory staff divided into different classes of workers: administrative, management, technicians, academic, and other.








STUDENT/POST DOC/ACADEMIC-TOTAL N° OF STAFF
1-10
0
Abstained
30%
20%
50%

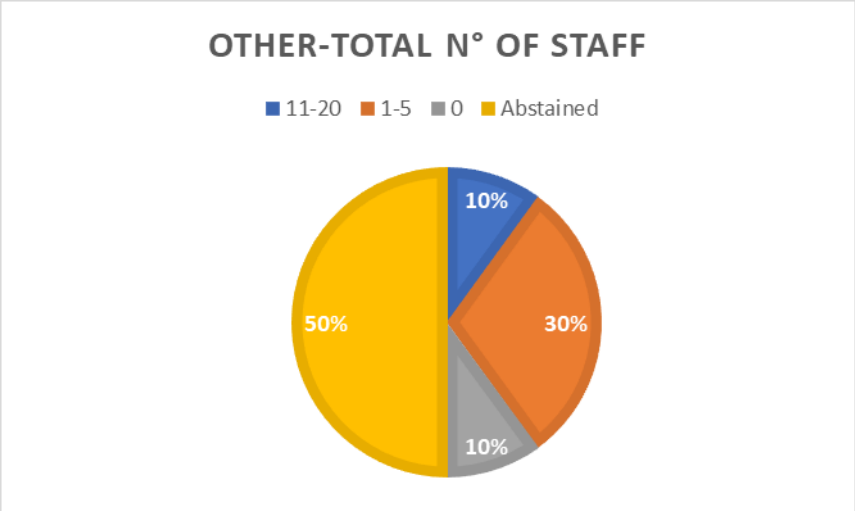
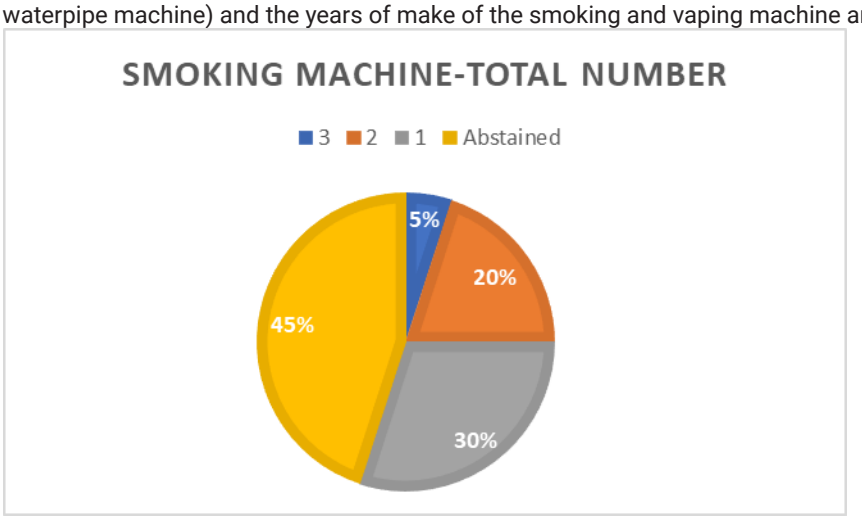
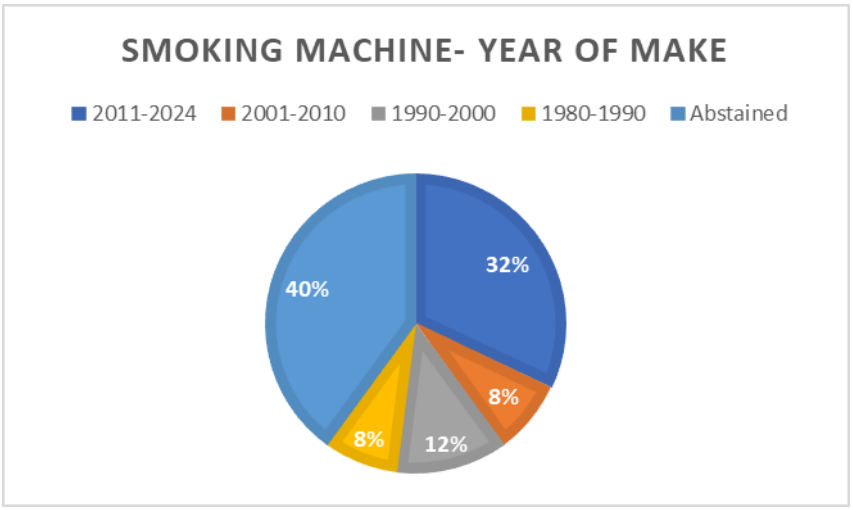
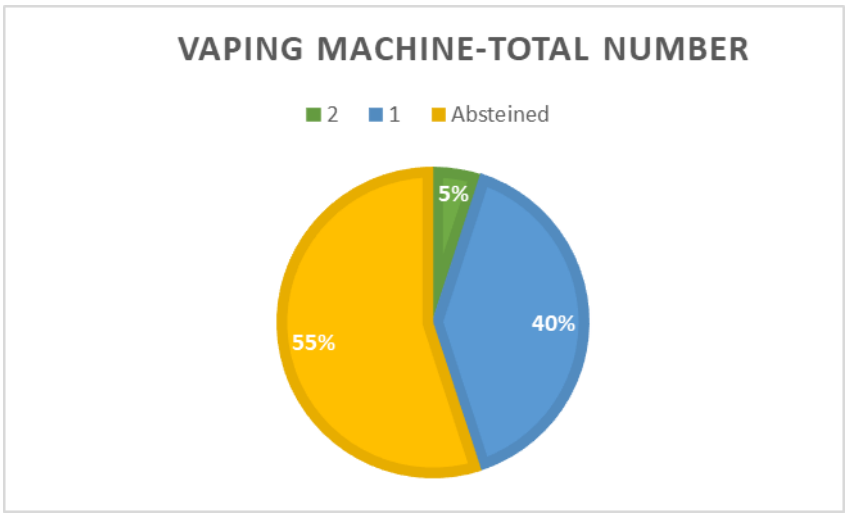
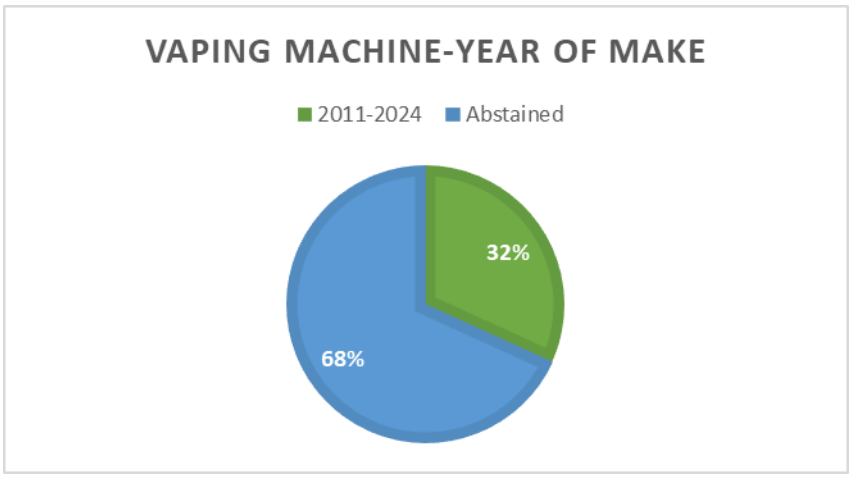

OTHER-TOTAL N° OF STAFF
11-20
1-5
0
Abstained
10%
30%
10%
50%

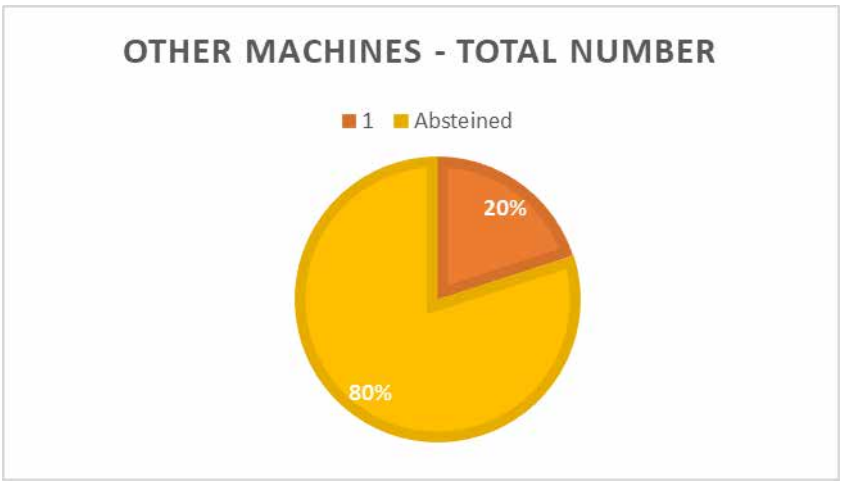
Figure 5. Results, expressed in percentage, to the questions concerning the number of smoking and vaping machine and other machines (es. waterpipe machine) and the years of make of the smoking and vaping machine and other machines.

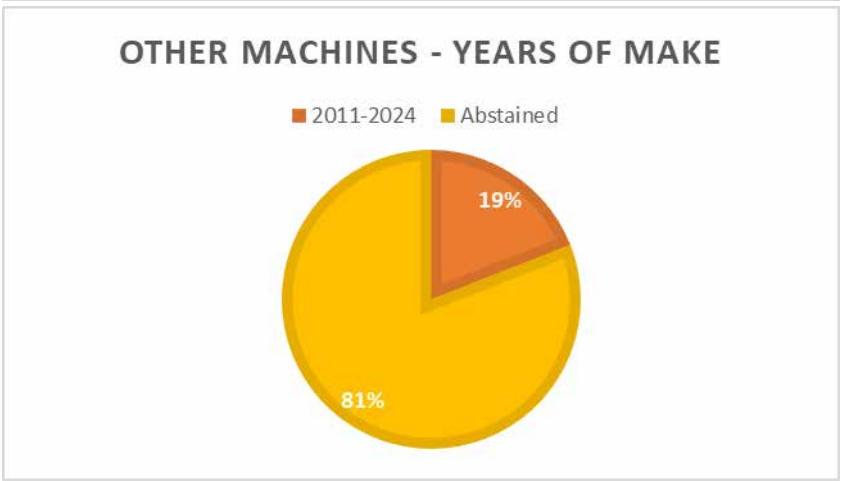







VAPING MACHINE-YEAR OF MAKE
2011-2024
Abstained
32%
68%


OTHER MACHINES - TOTAL NUMBER
1
Absteined
20%
80%


OTHER MACHINES - YEARS OF MAKE
2011-2024
Abstained
19%
81%

3.2 Countries that filled out the questionnaire

Figure 6. The map represents the distribution of the laboratories filled out the questionnaire WP5 D 5.3: in dark green the states with two or more laboratories, while in light green the states with a single laboratory.

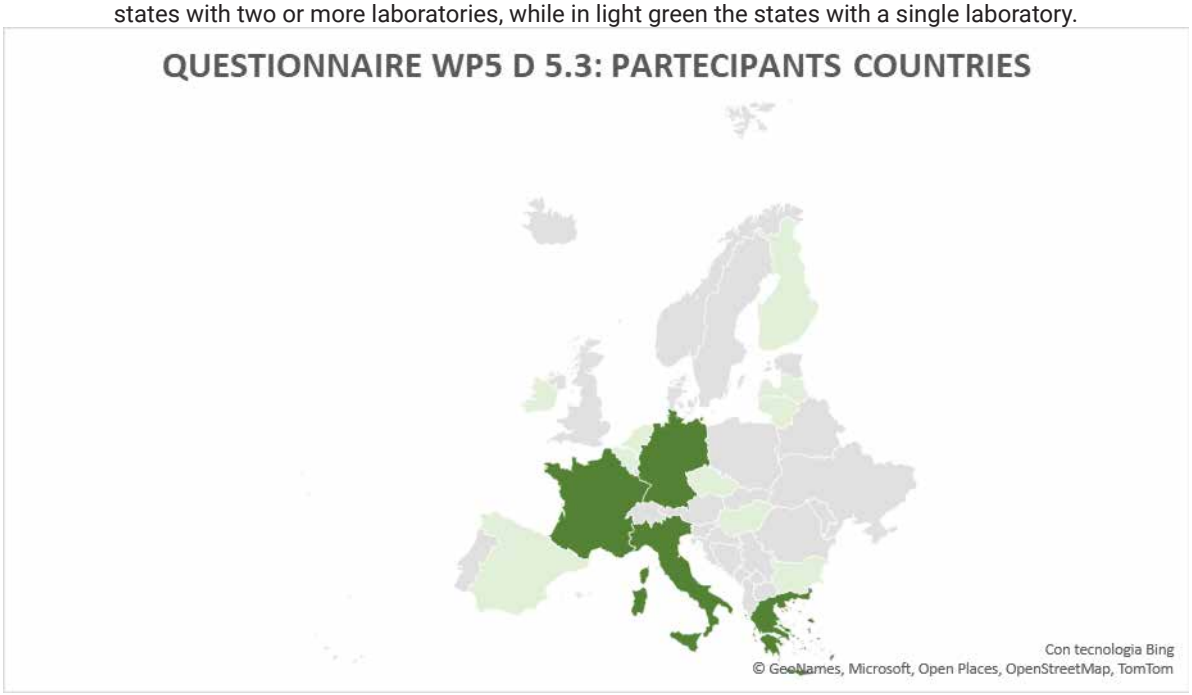
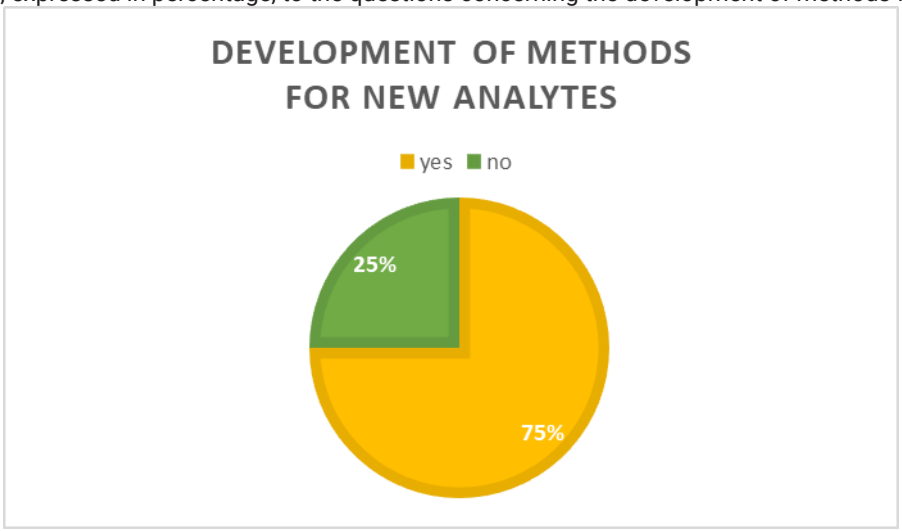


Figure 7. Results, expressed in percentage, to the questions concerning the development of methods for new analytes.



3.3 Analysis carried out on cigarettes

This section includes 77 questions focused on the analysis of compounds contained in cigarettes, carried out by laboratories in the last three year (2021-2024). Each compound examined was subjected to the same questions: standard reference method (ISO,EN,etc.), extraction method, analytical method and number of instruments, model of instruments and number of analysis carried out in one year. The compounds examined for cigarettes include: TNCO, nitrogen oxides, volatile organic compounds (VOCs), tobacco N- nitrosamines, carbonyl compounds, metals, ammonia in tobacco filler, humectants, additives and cigarette ventilation and untarget analysis. The answers to the questions are divided by analytes, showing on the European map which laboratories analysed that compound and presented a graphical representation of the answers.

3.3.1 TNCO

About this category of analytes, we received responses from 8 laboratories from 7 countries.

Figure 8. The map represents the distribution of the laboratories that deal with TNCO analysis: in dark blue the states with two laboratories, while in light blue the states with a single laboratory.

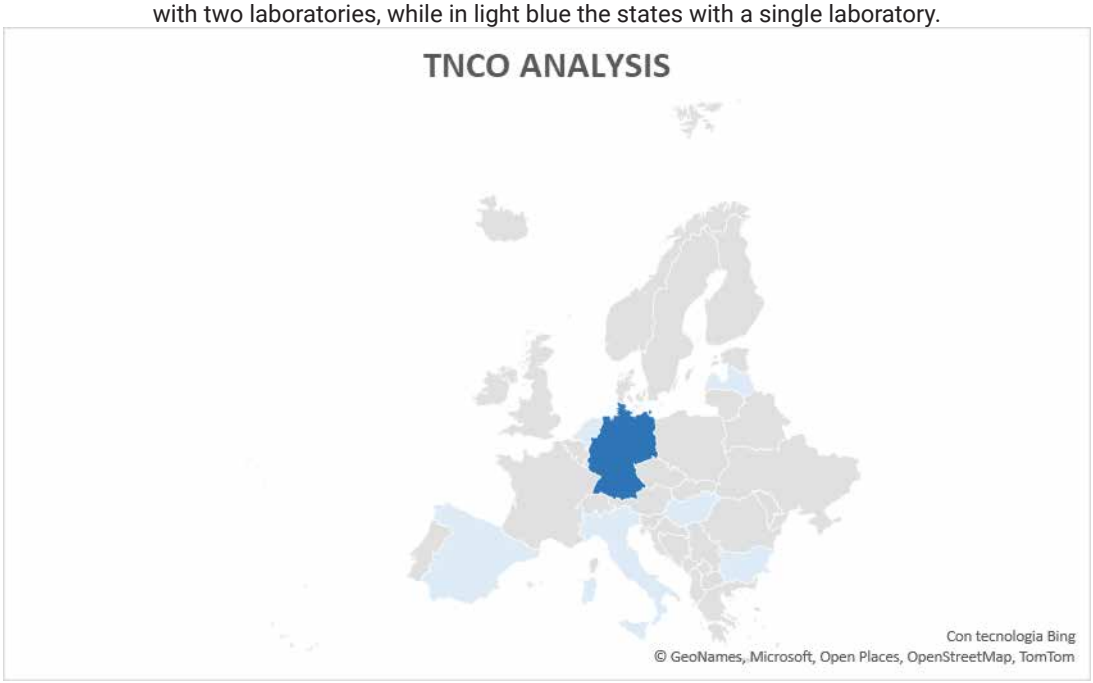
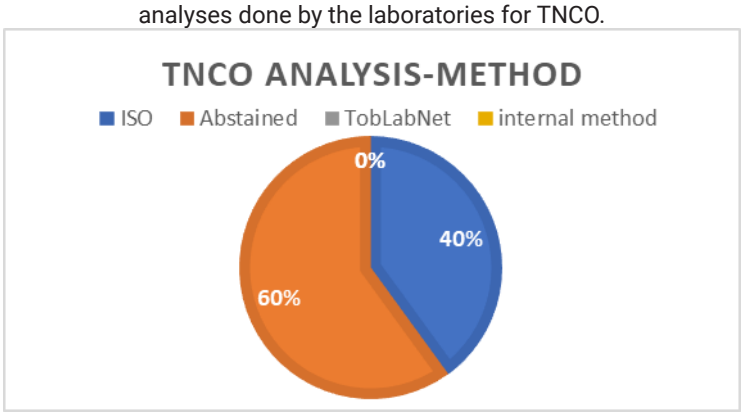
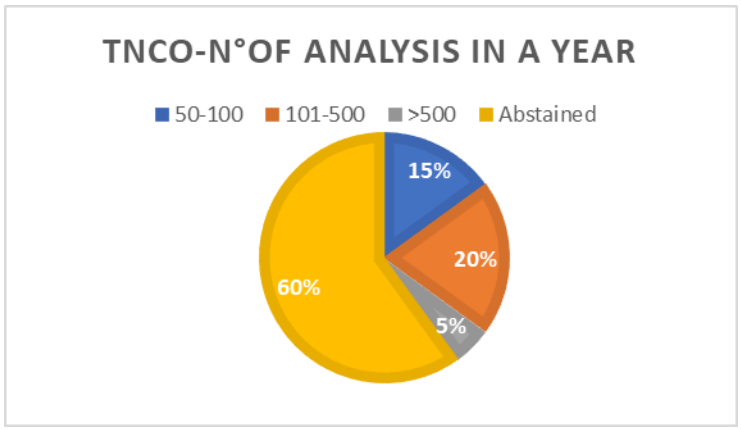


Figure 9. Results, expressed in percentage, of questions about the standard reference method for TNCO, the number of analyses done by the laboratories for TNCO.





3.3.2 Nitrogen oxides

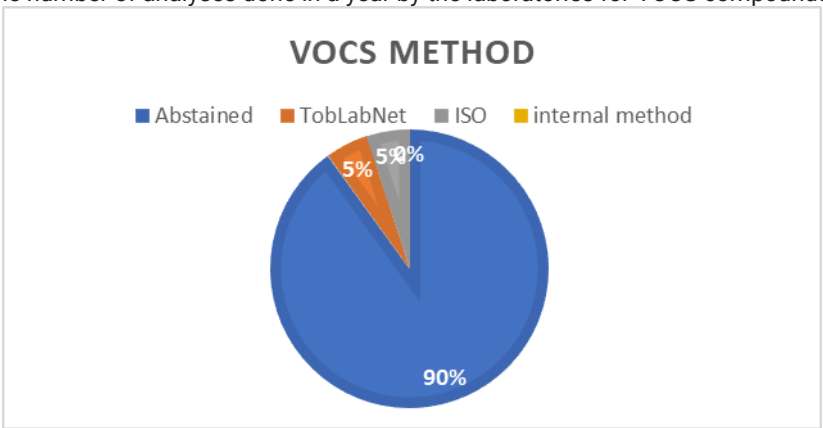
About this category of analytes, we didn't receive any response from the 20 laboratories that filled out the questionnaire.

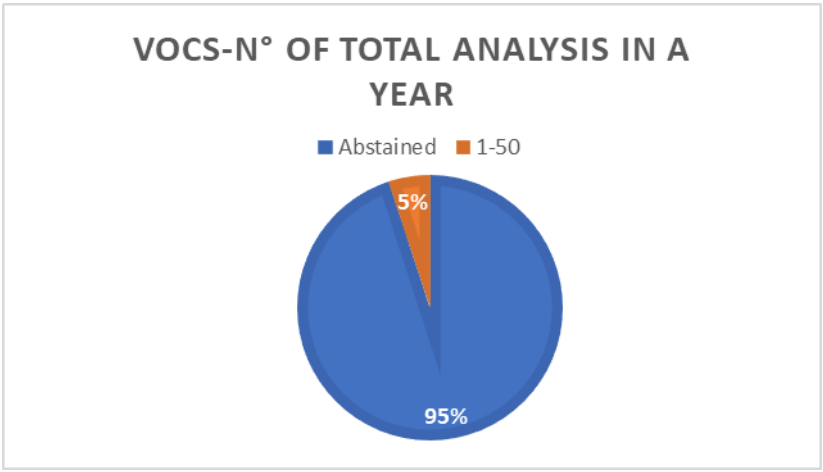
3.3.3 VOCs

About this category of analytes, we only received responses from 2 laboratories across 2 countries.

Figure 10. The map represents the distribution of the laboratories that deal with VOCs analysis.

Figure 11. Results, expressed in percentage, of questions about the standard reference method for VOCS compounds, the number of analyses done in a year by the laboratories for VOCS compounds.





3.3.4 Tobacco N-nitrosamines

About this category of analytes, we received response record from 1 laboratory.

Only a laboratory analysed this class of compounds with 10 analyses in a year, following TobLabNet SOP 03 method.

Figure 12. The map represents the distribution of the laboratories that deal with Tobacco N-nitrosamines analysis.

3.3.5 Carbonyl compounds

About this category of analytes, we received responses from 3 laboratories across 3 countries.

Figure 13. The map represents the distribution of the laboratories that deal with carbonyl compounds analysis.

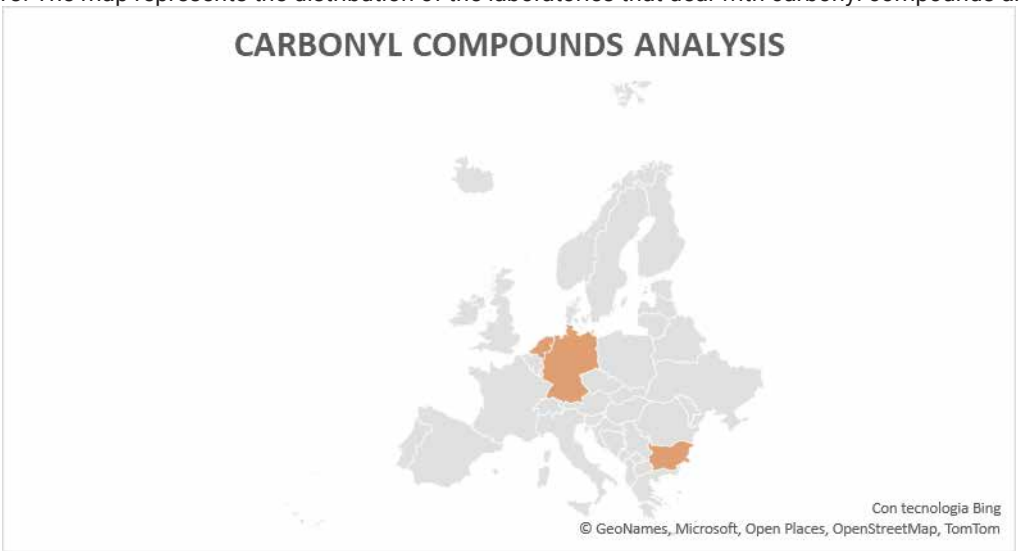
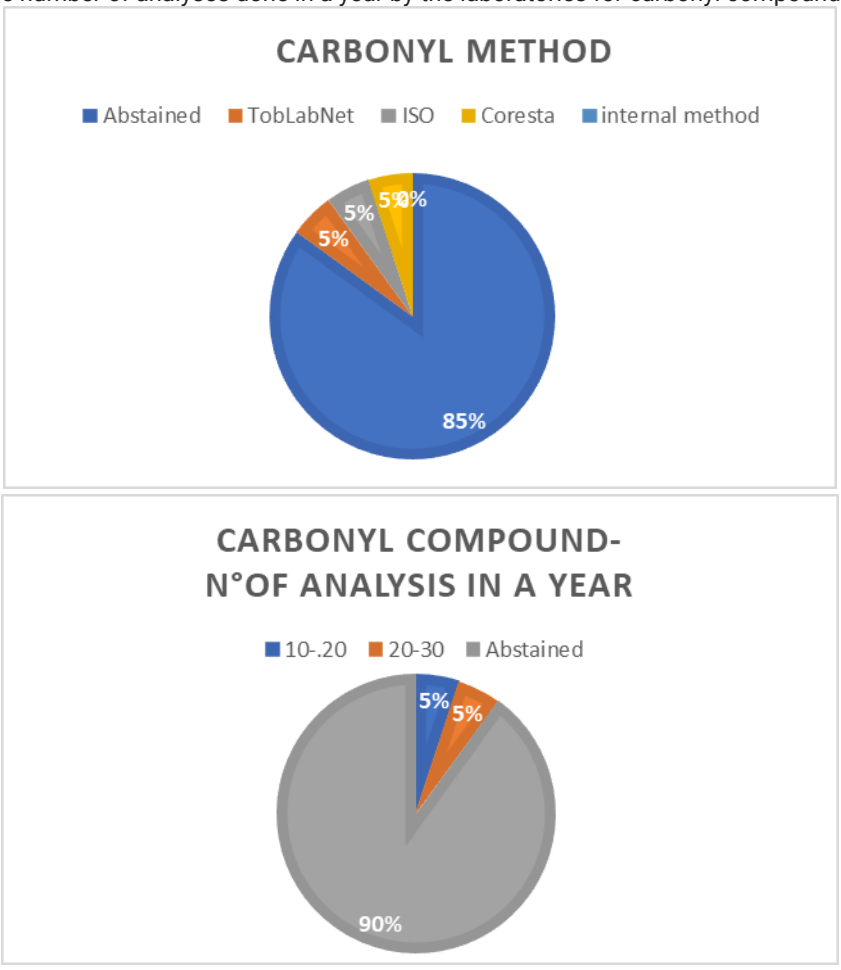


Figure 14. Results, expressed in percentage, of questions about the standard reference method for carbonyl compounds, the number of analyses done in a year by the laboratories for carbonyl compounds.



3.3.6 Metals

About this category of analytes, we only receive a response from one laboratory among 20 that filled out the questionnaire. This laboratory analyses this class of compound with 200 analyses per year, but the method used was not declared.

Figure 15. The map represents the distribution of the laboratories that deal with metals analysis.

3.3.7 Ammonia in tobacco filler

About this category of analytes, we received responses from 2 laboratories across 2 countries.

Figure 16 The map represents the distribution of the laboratories that deal with Ammonia in tobacco filler analysis.

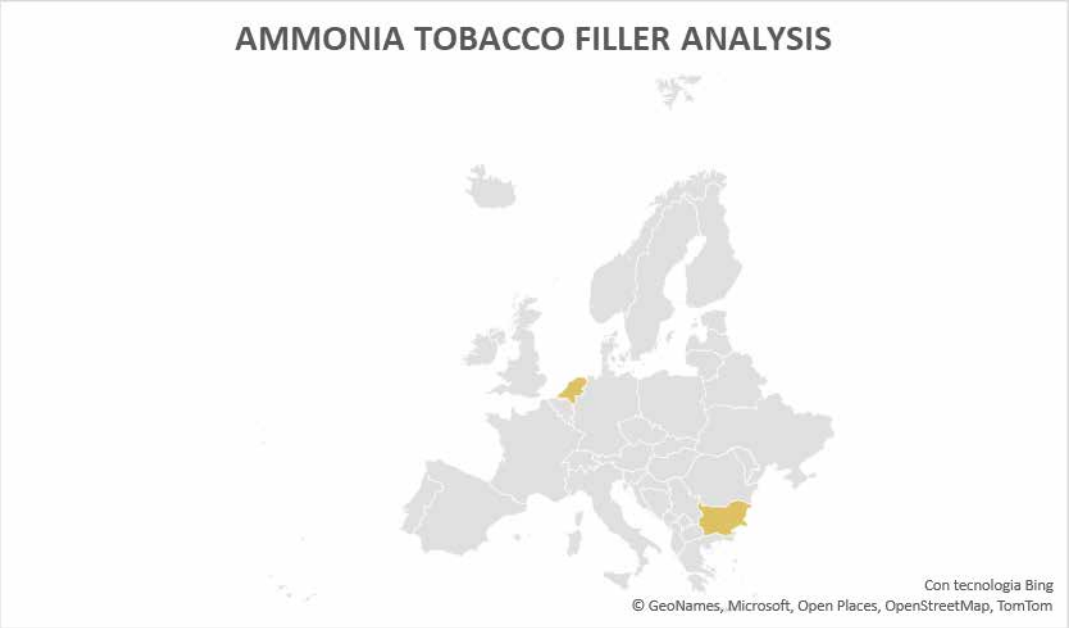
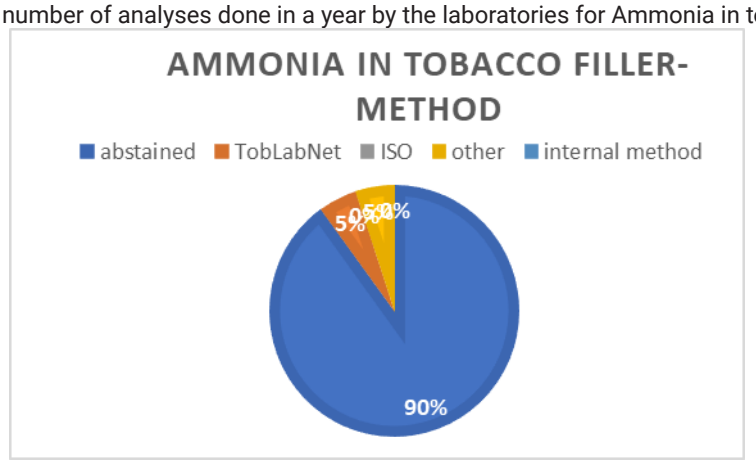
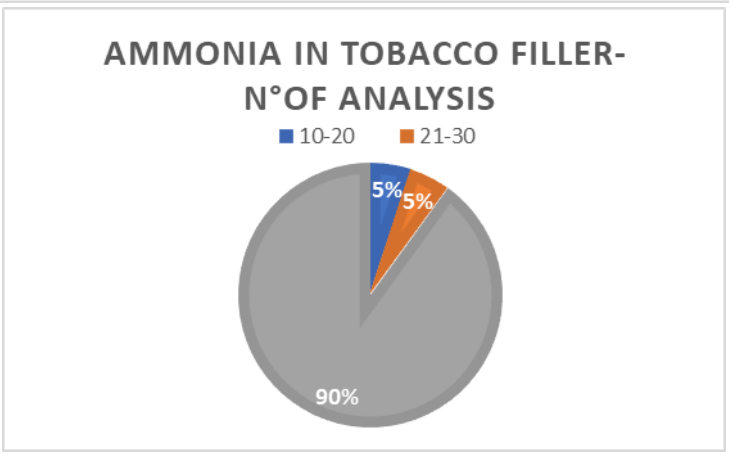


Figure 17. Results, expressed in percentage, of questions about the standard reference method for Ammonia in tobacco filler and the number of analyses done in a year by the laboratories for Ammonia in tobacco filler.



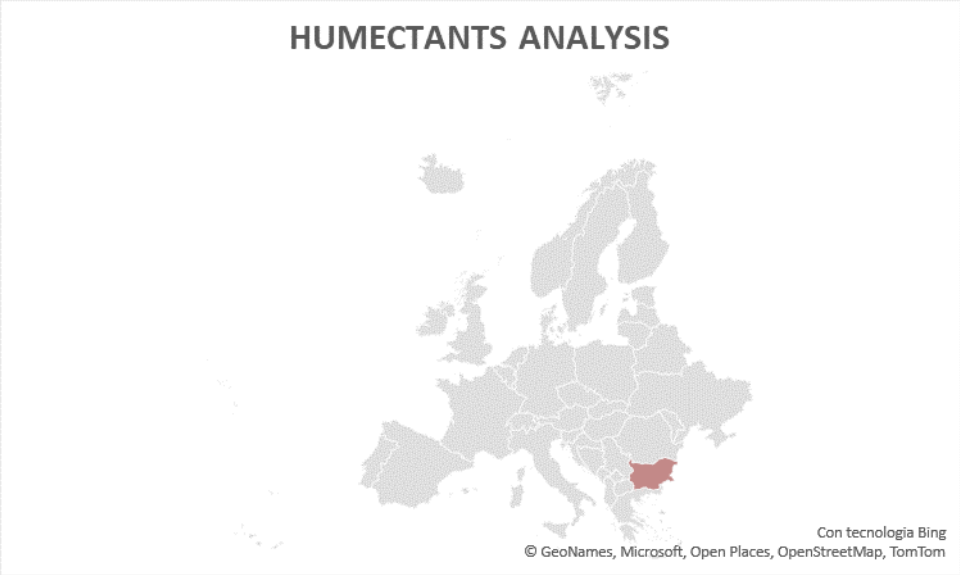


3.3.8 Humectants

About this category of analytes, we only received one response.

This laboratory analyses these compounds following TobLabNet SOP 06 method without declaring the number of analyses carried out in a year.

Figure 18. The map represents the distribution of the laboratories that deal with Humectants analysis.



3.3.9 Other additives contained in cigarettes and roll-your-own tobacco subject to enhanced reporting obligations

About this category of analytes, we received responses from 2 laboratories across 2 countries.

Figure 19. The map represents the distribution of the laboratories that deal with other additives contained in cigarettes and roll-your-own tobacco subject to enhanced reporting obligations.

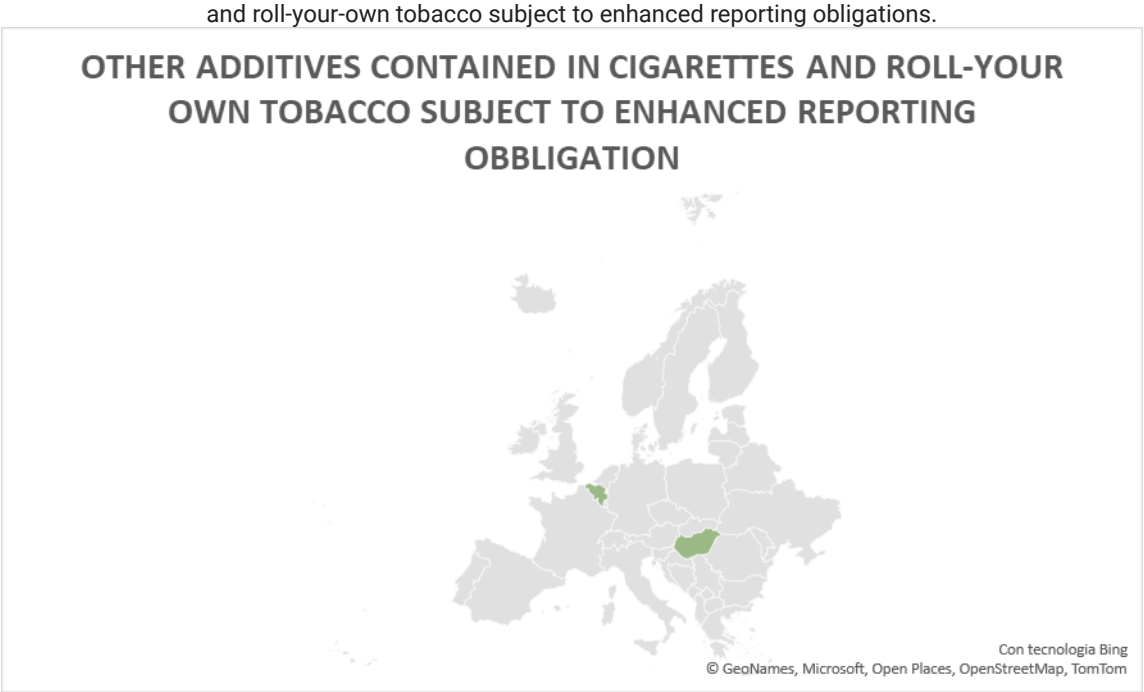
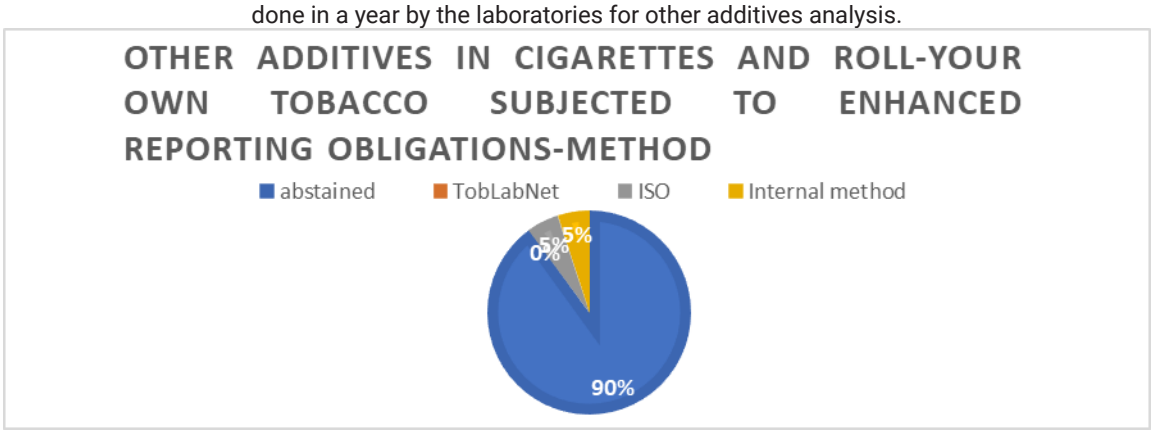
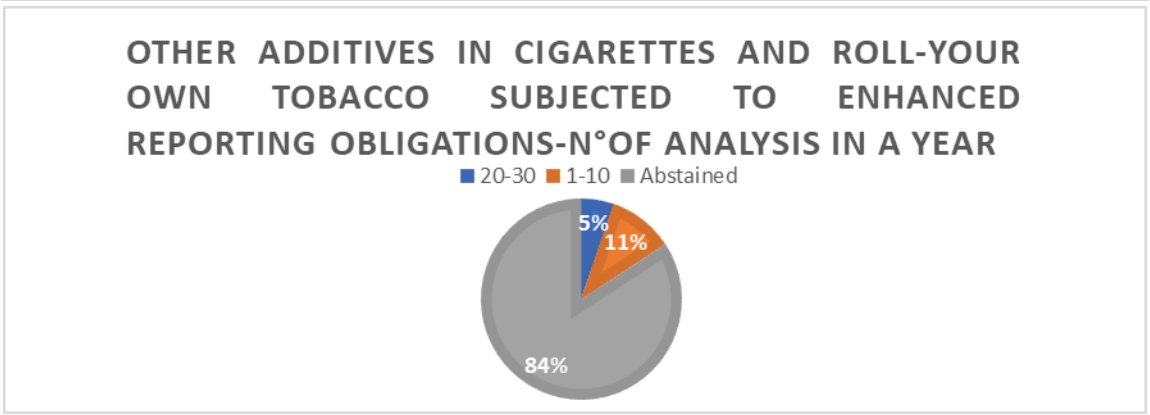


Figure 20. Results, expressed in percentage, of questions about the standard reference method for other additives contained in cigarettes and roll-your-own tobacco subject to enhanced reporting obligations and the number of analyses done in a year by the laboratories for other additives analysis.





3.3.10 Cigarette ventilation

About this category of analytes, we received responses from 3 laboratories across 2 countries.

Figure 21. The map represents the distribution of the laboratories that deal with Cigarette ventilation analysis: in dark blue the states with two laboratories, while in light blue the states with a single laboratory.

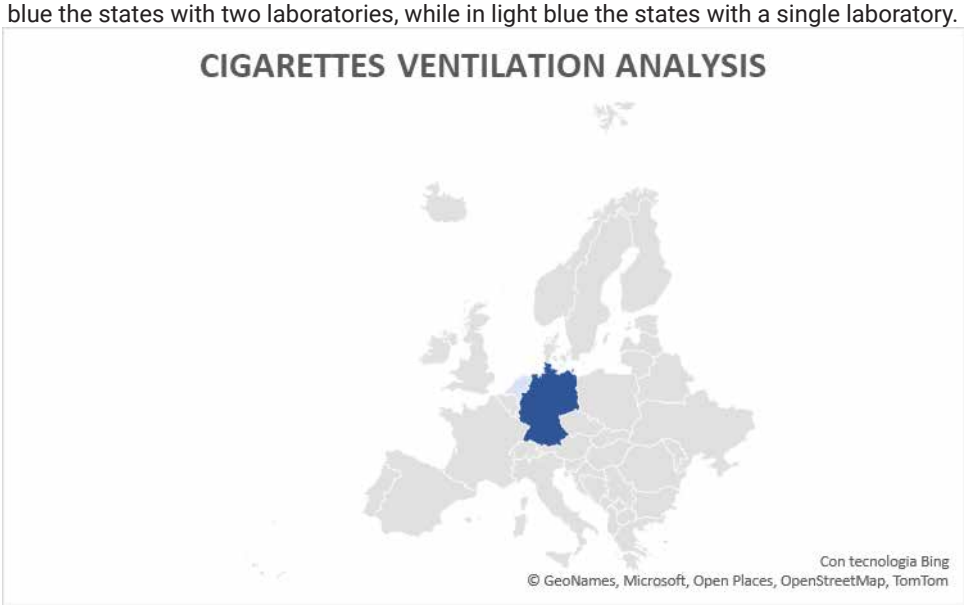
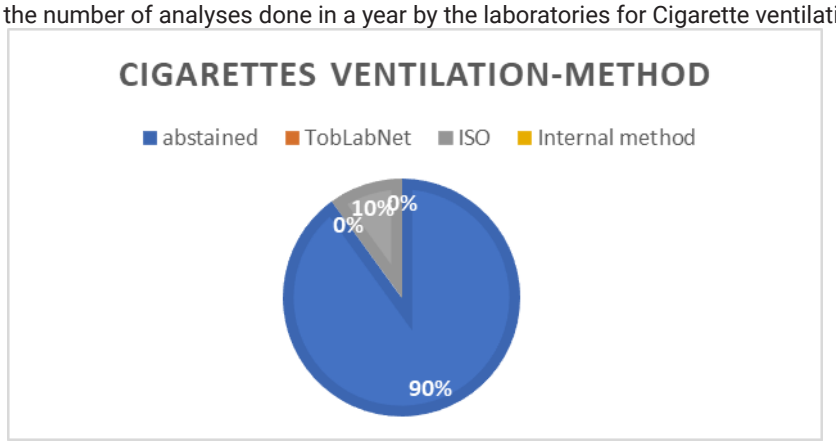
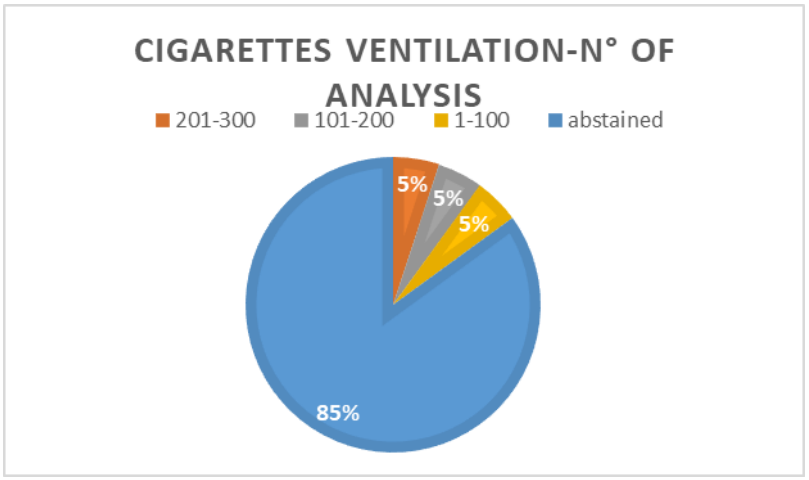


Figure 22. Results, expressed in percentage of questions about the standard reference method for Cigarette ventilation, and the number of analyses done in a year by the laboratories for Cigarette ventilation.





3.3.11 Untarget analysis

About untarget approach, we only received 2 responses across 2 laboratories.

Figure 23. The map represents the distribution of the laboratories that deal with untarget analysis.

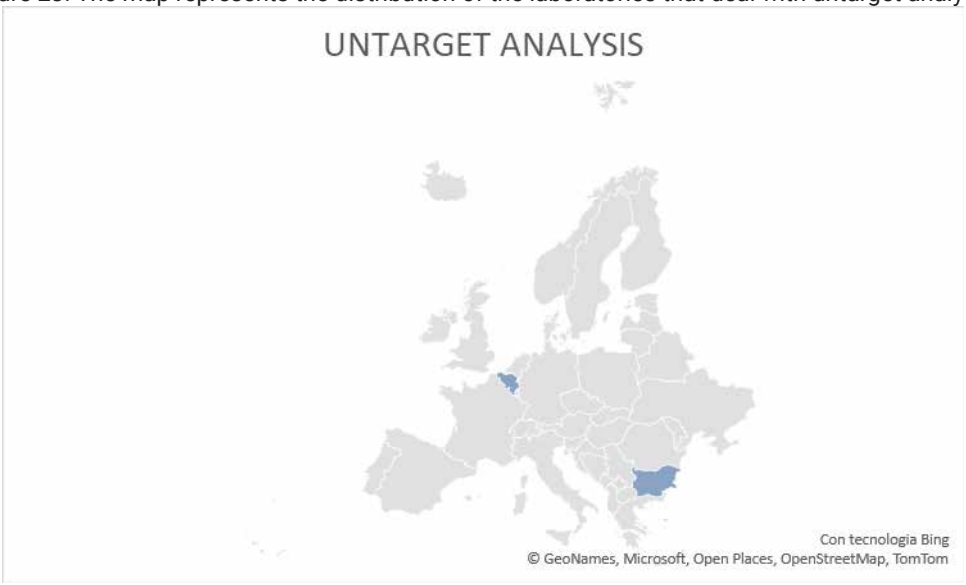
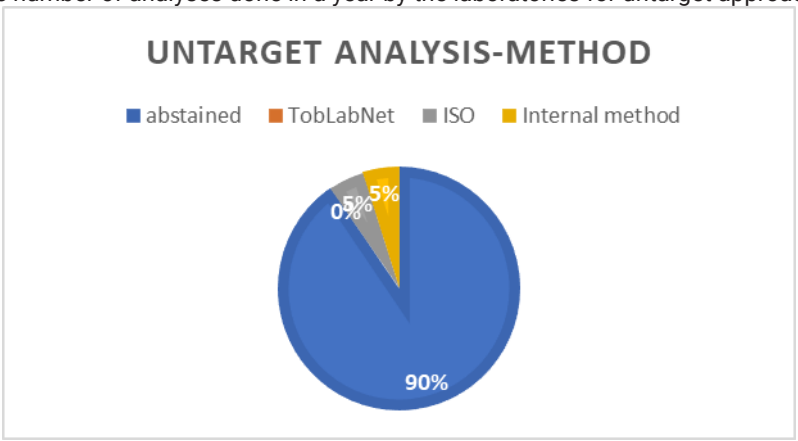
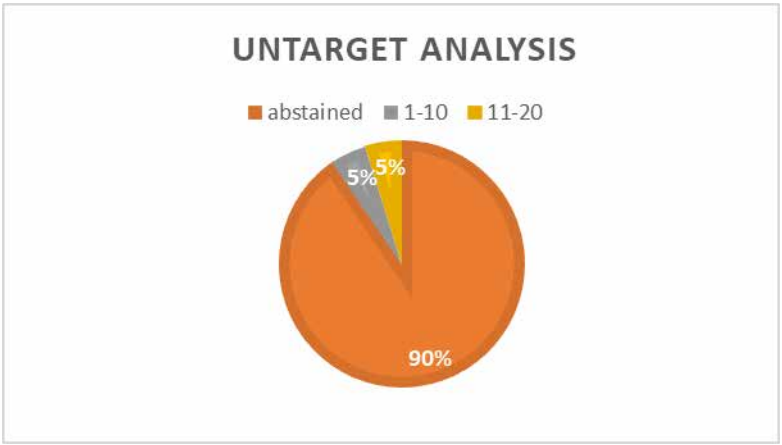


Figure 24. Results, expressed in percentage of questions about the standard reference method for untarget analysis, and the number of analyses done in a year by the laboratories for untarget approach.





3.4 Analysis carried out on e-cigarettes and novel tobacco products

This section includes about 63 questions and focused on the analysis of compounds contained in e- cigarettes and novel tobacco products (NTP). Each compound examined was subjected to the same questions: standard reference method (ISO,EN,etc.), extraction method, analytical method and number of instruments, model of instruments and number of analysis carried out in one year. The compounds examined for e-cigarettes include: nicotine, flavours, vitamins, stimulant additives, substances with CMR properties, glycols, carbonyl compounds, metals and untarget. The answers to the questions are divided by analytes, showing on the European map which laboratories analysed that compound and presented a graphical representation of the answers.

3.4.1 Vitamins or other additives used as food supplements

About this category of analytes, we received a response from 2 laboratories across 2 countries.

Figure 25. The map represents the distribution of the laboratories that deal with vitamins analysis other additives used as food supplements.

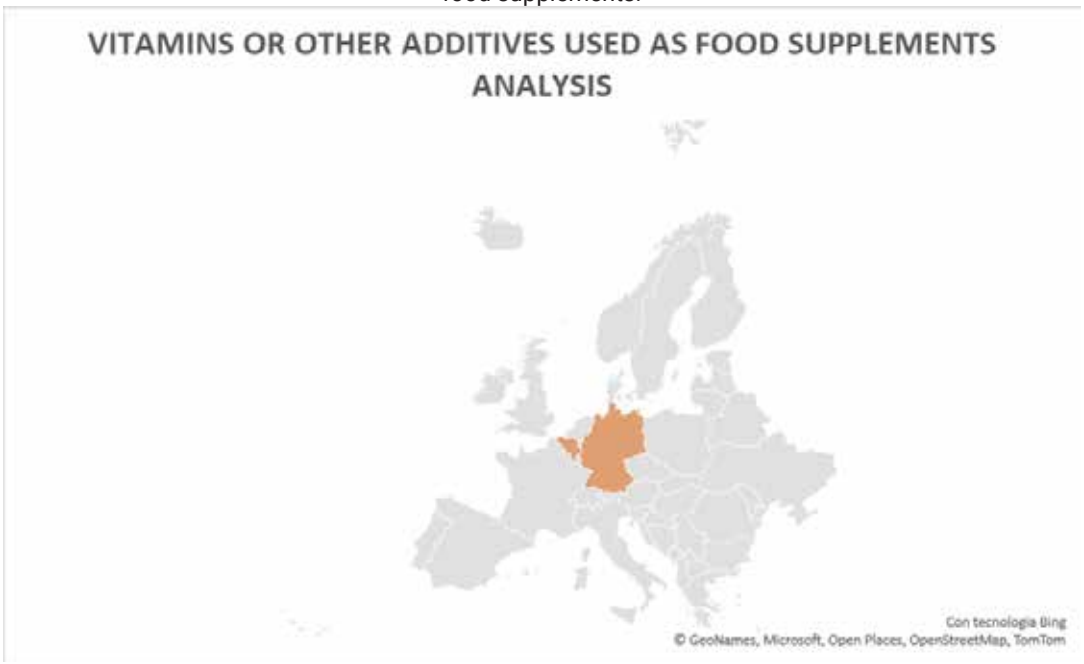
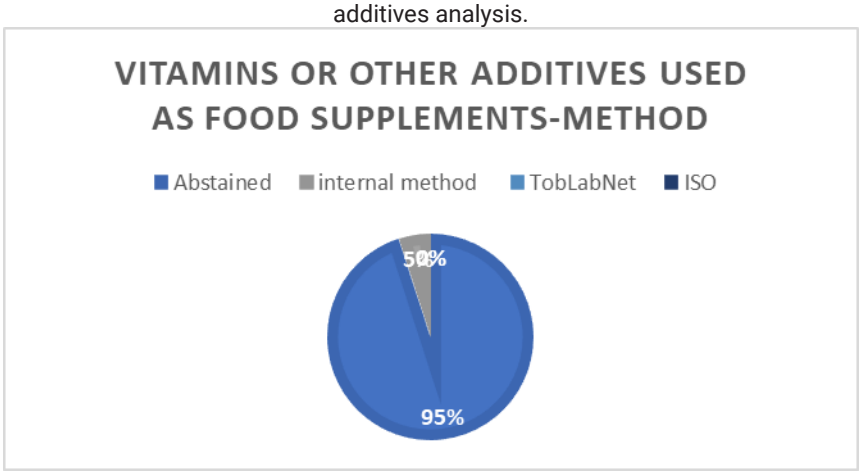
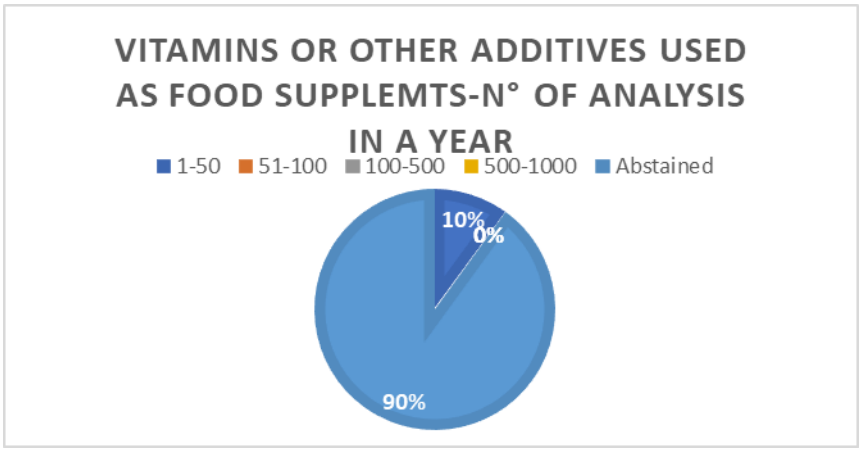


Figure 26. Results, expressed in percentage, of questions about the standard reference method for vitamins or other additives used as food supplements and the number of analyses done in a year by the laboratories for vitamins and other additives analysis.





3.4.2 Nicotine

About this category of analytes, we received responses from 15 laboratories across 12 countries.

Figure 27. The map represents the distribution of the laboratories that deal with Nicotine analysis: in light orange the states with a single laboratory, while in dark orange the states with more laboratories.

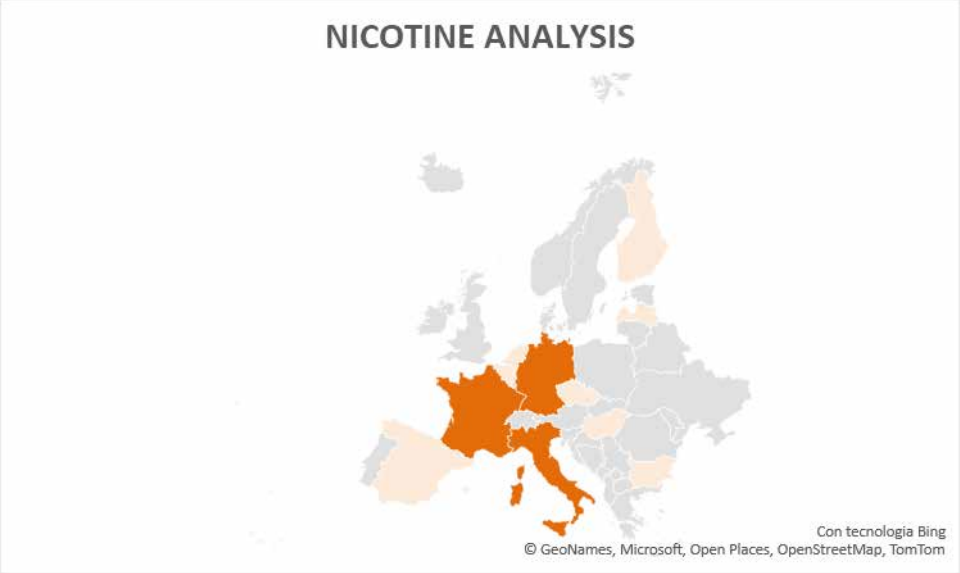
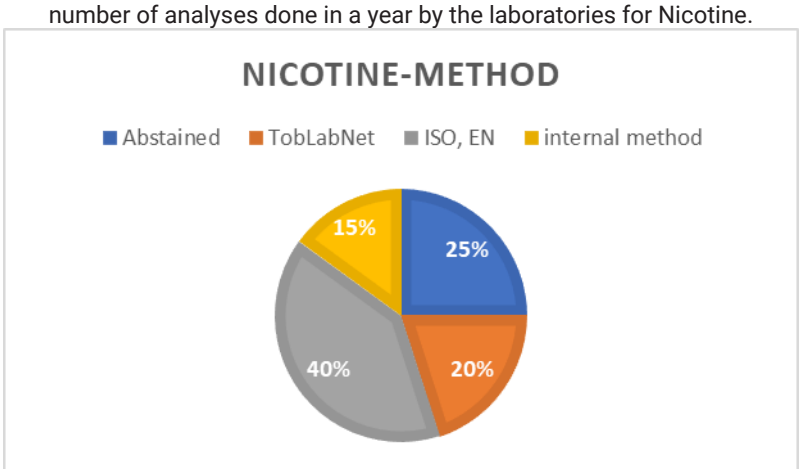
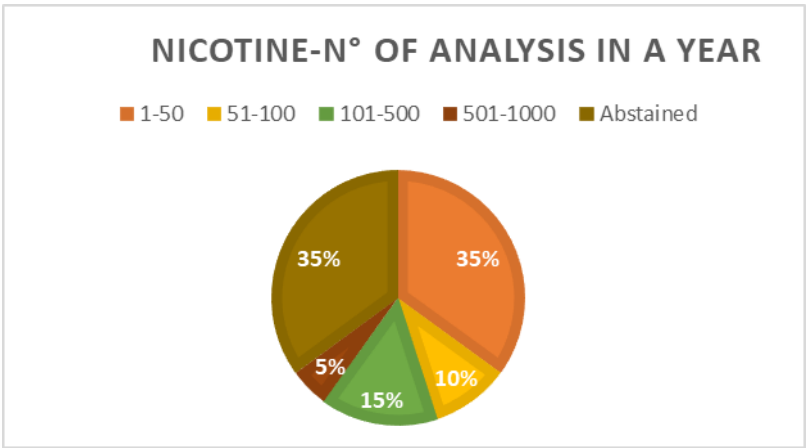


Figure 28. Results, expressed in percentage, of questions about the standard reference method for Nicotine, and the number of analyses done in a year by the laboratories for Nicotine.





3.4.3 Flavours

About this class of compounds, we received responses from 6 laboratories across 6 countries.

Figure 29. The map represents the distribution of the laboratories that deal with Flavours analysis.

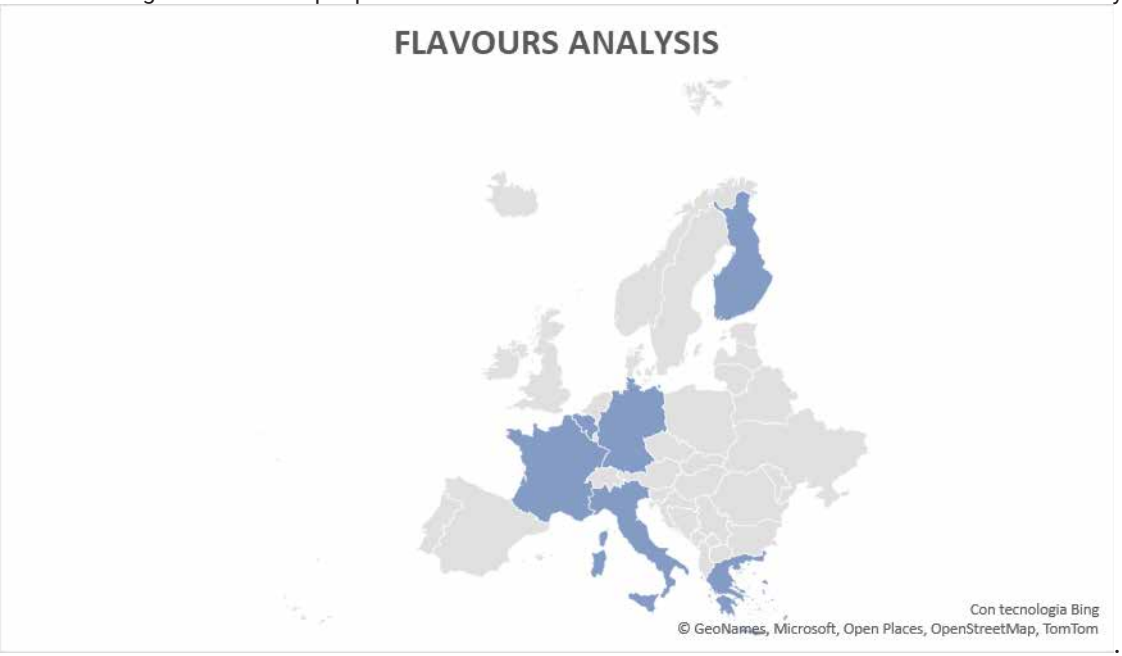
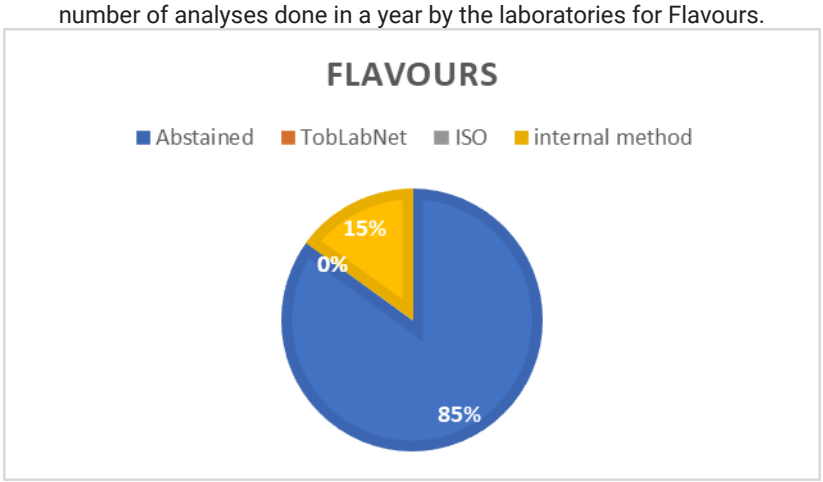
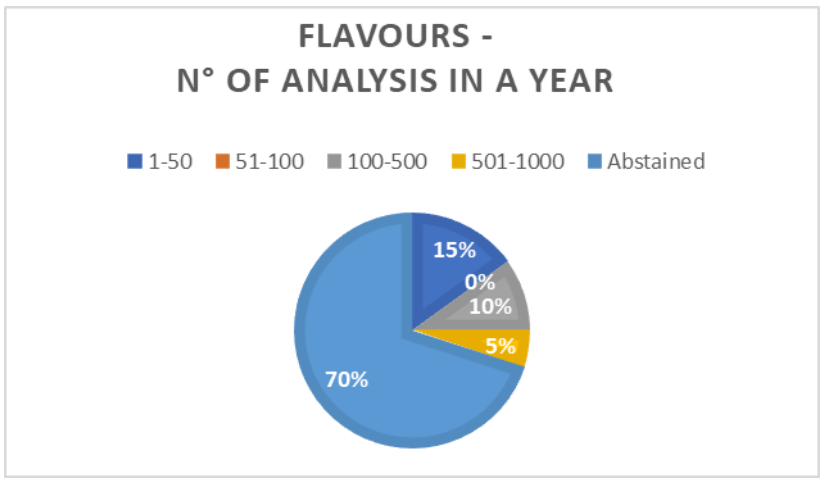


Figure 30. Results, expressed in percentage, of questions about the standard reference method for Flavours and the number of analyses done in a year by the laboratories for Flavours.





3.4.4 Stimulant additives

About this class of compounds, we received a response from 2 laboratory across 2 countries.

Figure 31. The map represents the distribution of the laboratories that deal with Stimulant additives analysis.

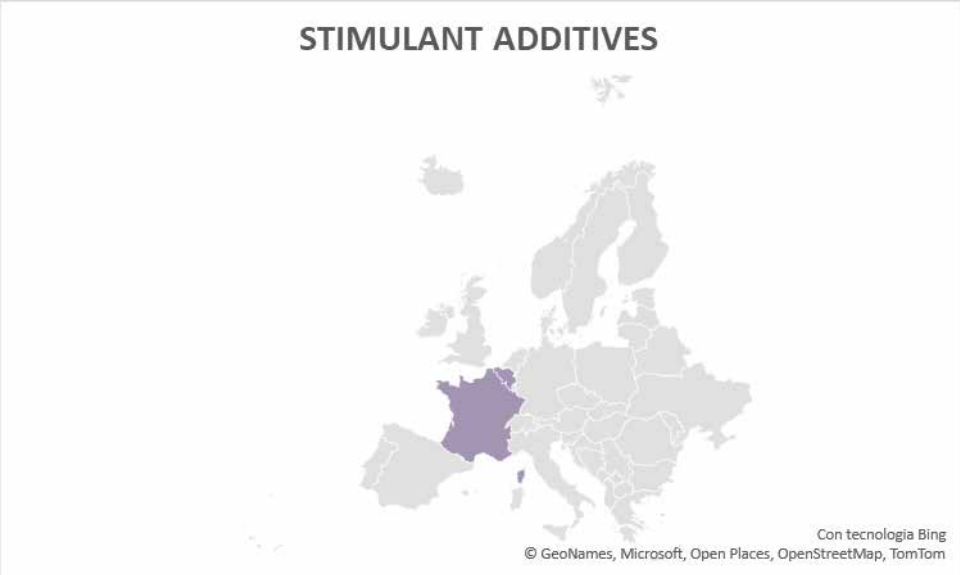
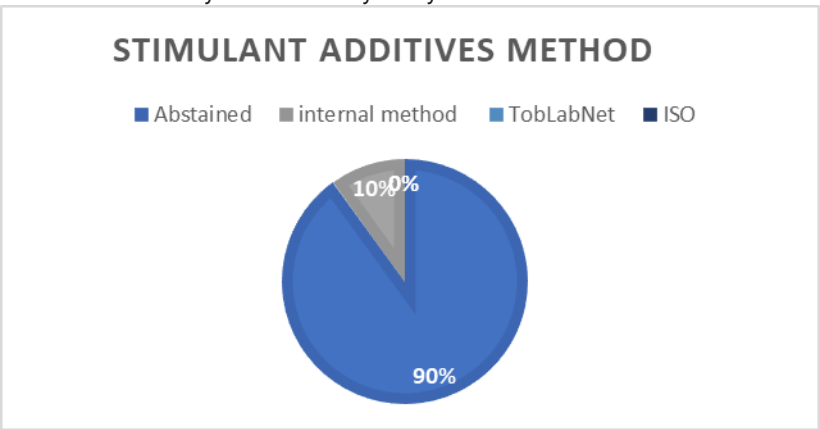
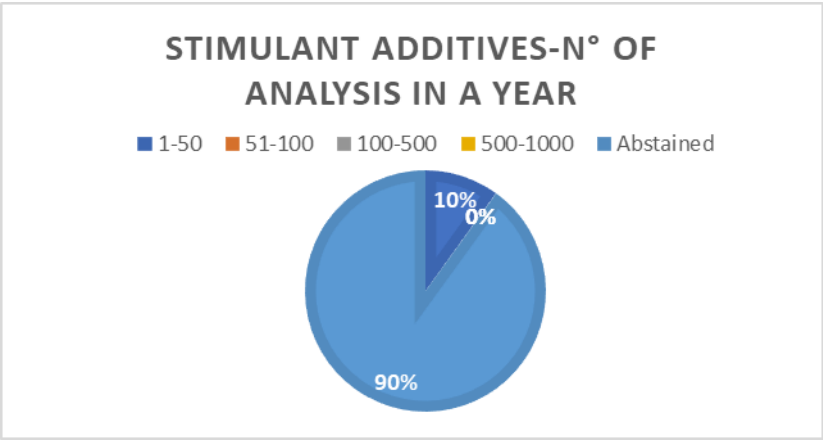


Figure 32. Results, expressed in percentage, of questions about the standard reference method for Stimulant additives, and the number of analyses done in a year by the laboratories for stimulant additives.





3.4.5 Substances with CMR properties

About this class of compounds, we received responses from 3 laboratories across 3 countries.

Figure 33. The map represents the distribution of the laboratories that deal with Substances with CMR properties analysis.

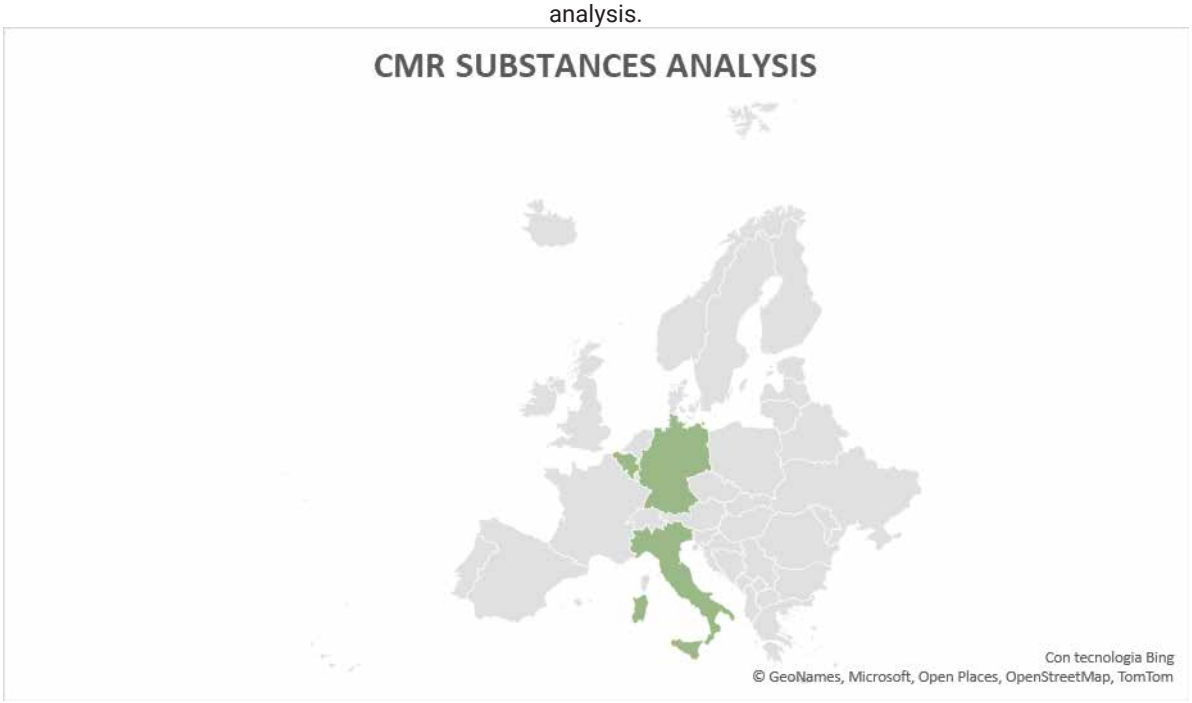
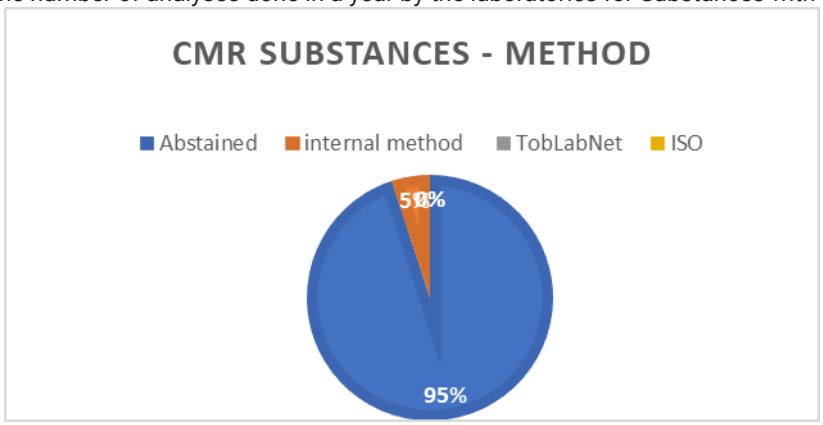
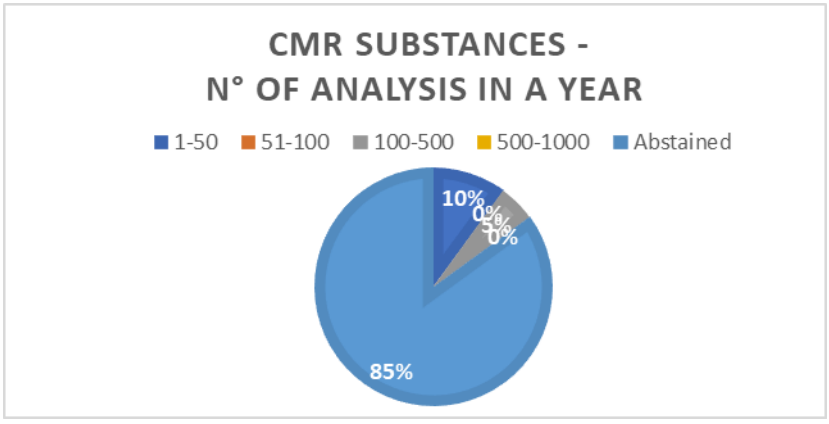


Figure 34. Results, expressed in percentage, of questions about the standard reference method for Substances with CMR properties and the number of analyses done in a year by the laboratories for Substances with CMR properties.





3.4.6 Glycols

About this class of compounds, we received responses from 5 laboratories across 4 countries.

Figure 35. The map represents the distribution of the laboratories that deal with glycols analysis: in light yellow the states with a single laboratory, while in dark yellow the states with more laboratories.

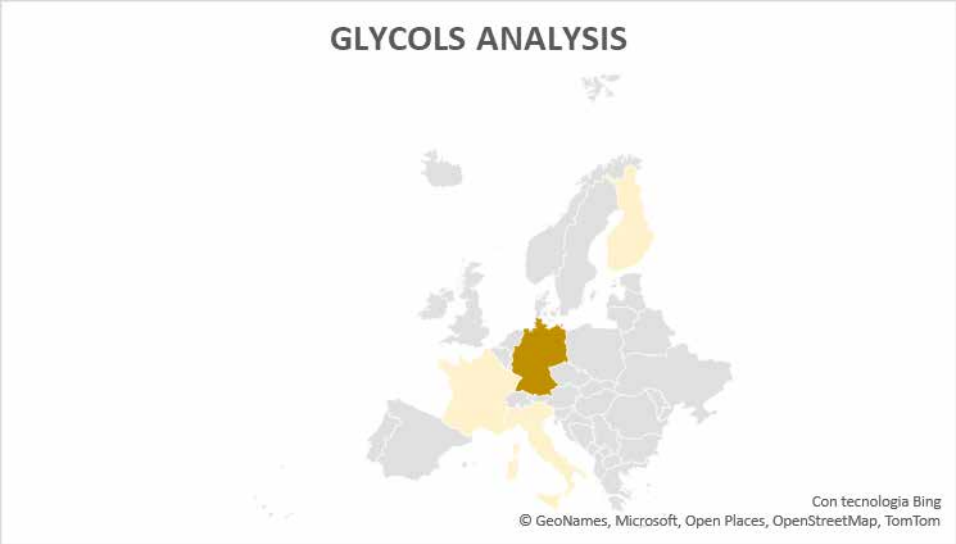
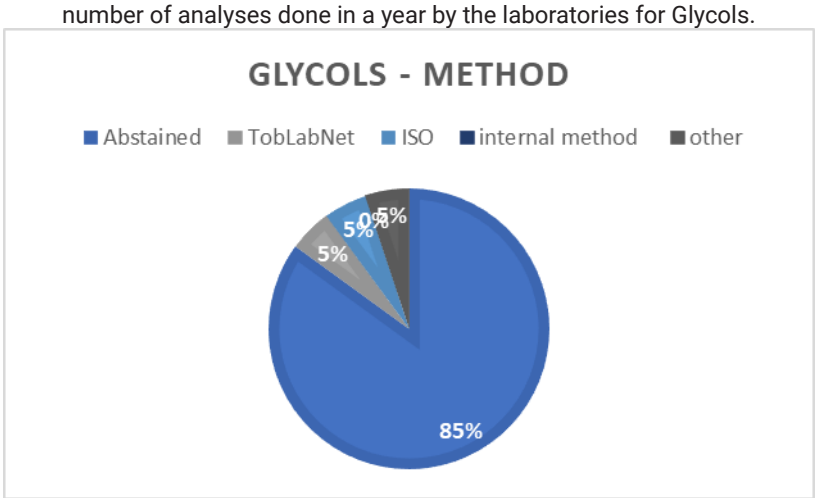
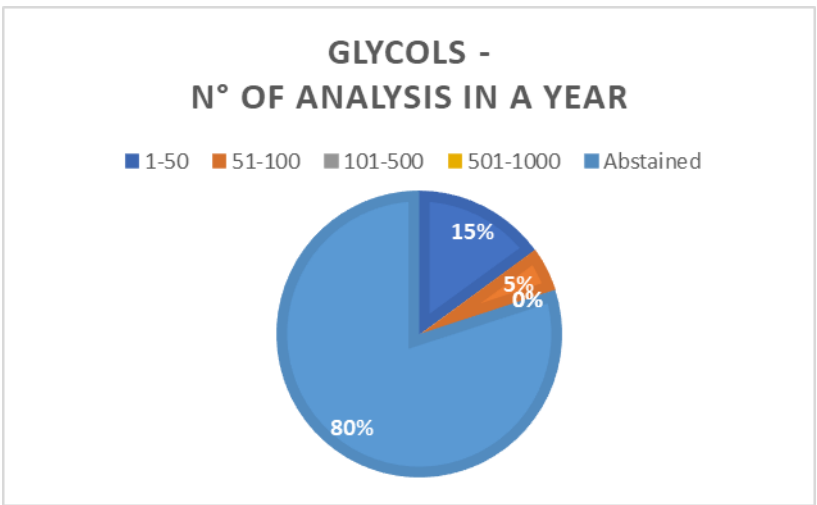


Figure 36. Results, expressed in percentage, of questions about the standard reference method for Glycols and the number of analyses done in a year by the laboratories for Glycols.





3.4.7 Carbonyl compounds

About this class of compounds, we received responses from 6 laboratories across 5 countries.

Figure 37. The map represents the distribution of the laboratories that deal with Carbonyl compounds analysis: in light orange the states with a single laboratory while in dark orange the states with more laboratories.

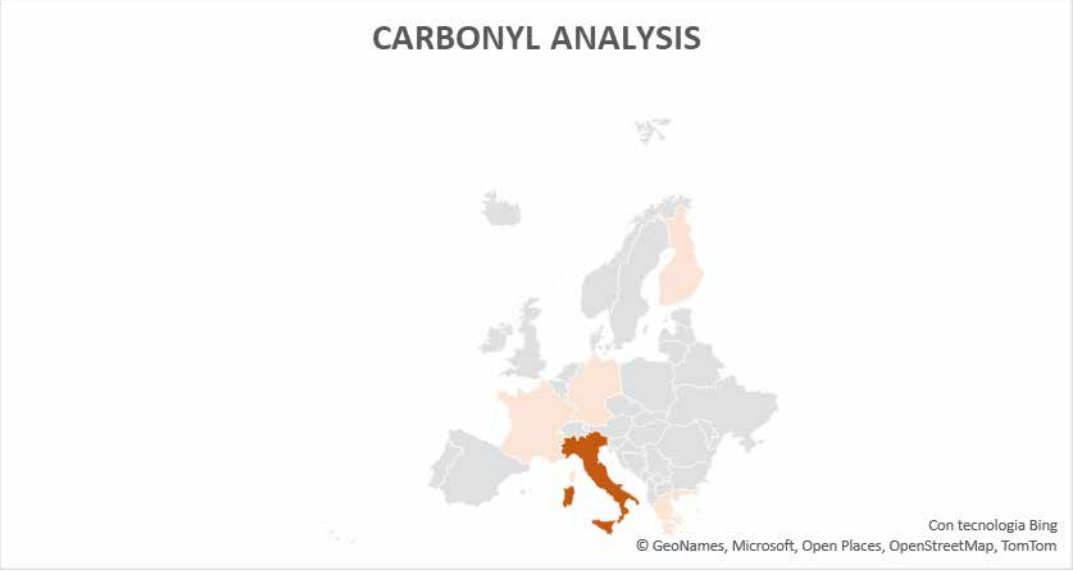
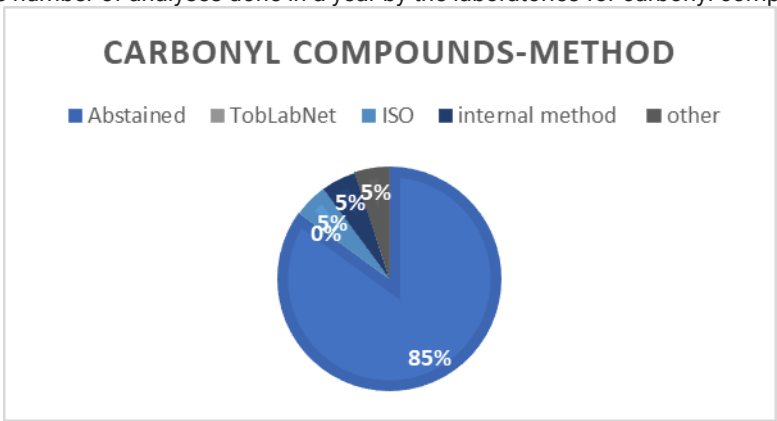
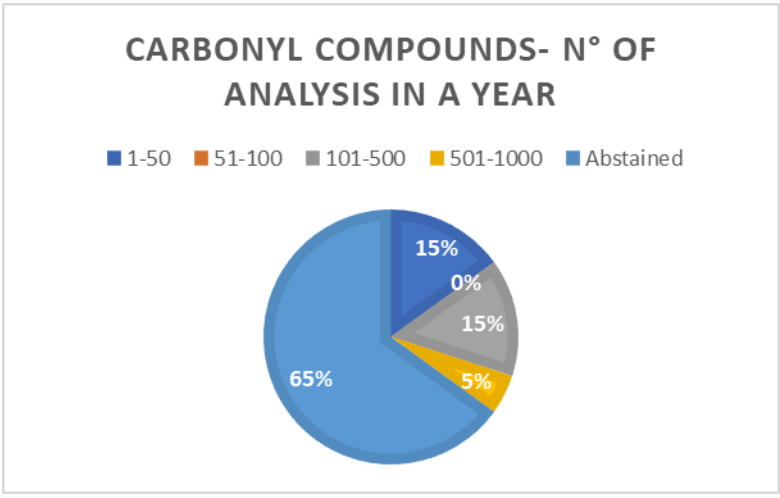


Figure 38. Results, expressed in percentage, of questions about the standard reference method for carbonyl compounds and the number of analyses done in a year by the laboratories for carbonyl compounds.





3.4.8 Metals

About this class of compounds, we received responses from 4 laboratories across 4 countries.

Figure 39. The map represents the distribution of the laboratories that deal with Metals analysis

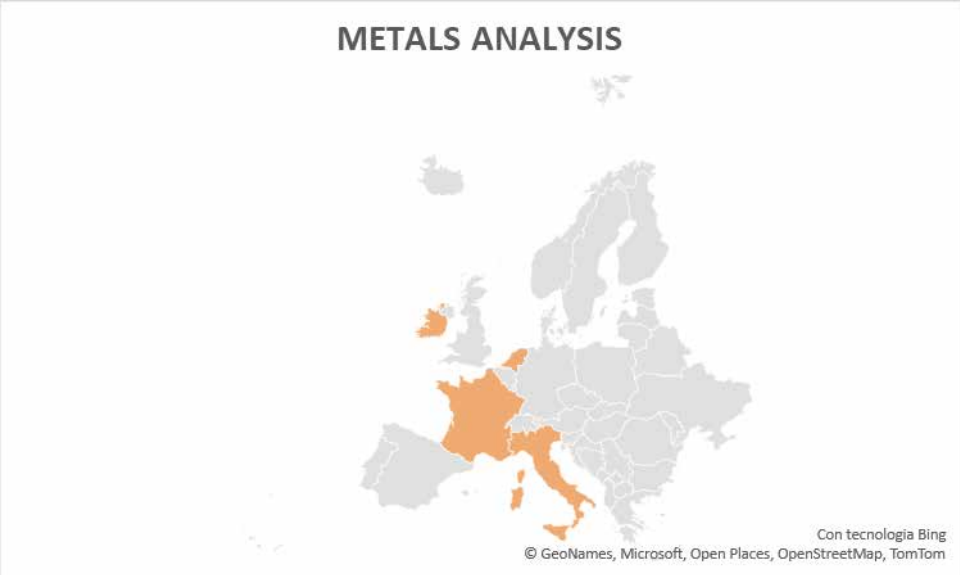
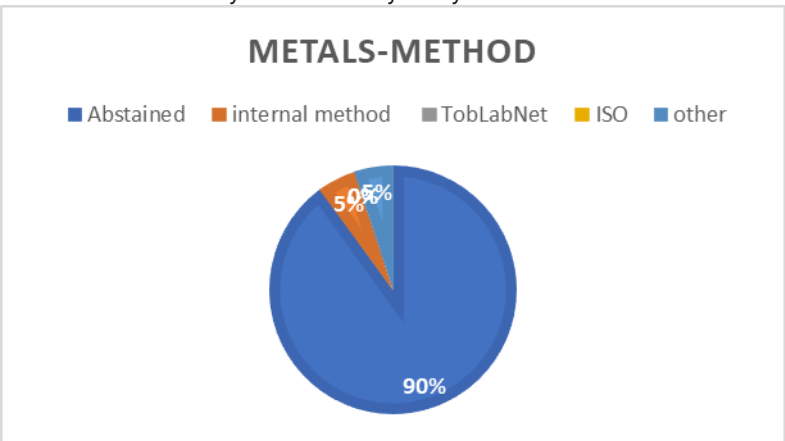
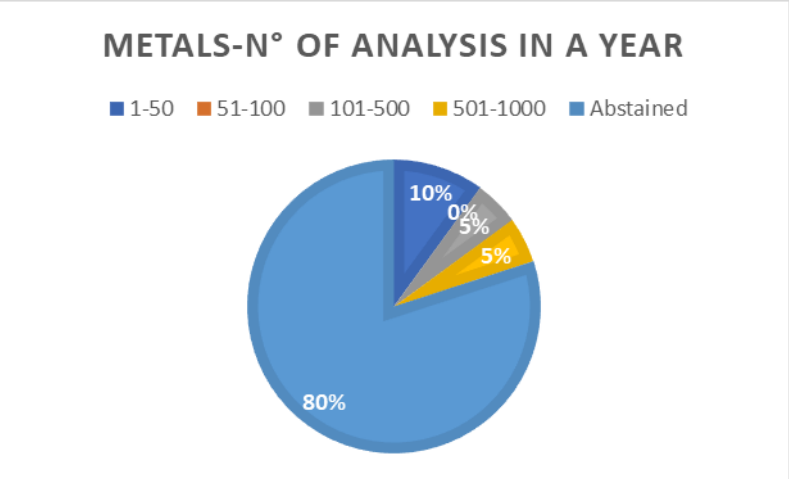


Figure 40. Results, expressed in percentage, of questions about the standard reference method for Metals analysis, and the number of analyses done in a year by the laboratories for Metals.





Untarget analysis

About this category of analytes, we received responses from 9 laboratories from 7 countries.

Figure 41. The map represents the distribution of the laboratories that deal with untarget analysis: in light blue the states with a single laboratory while in dark blue the states with more laboratories.

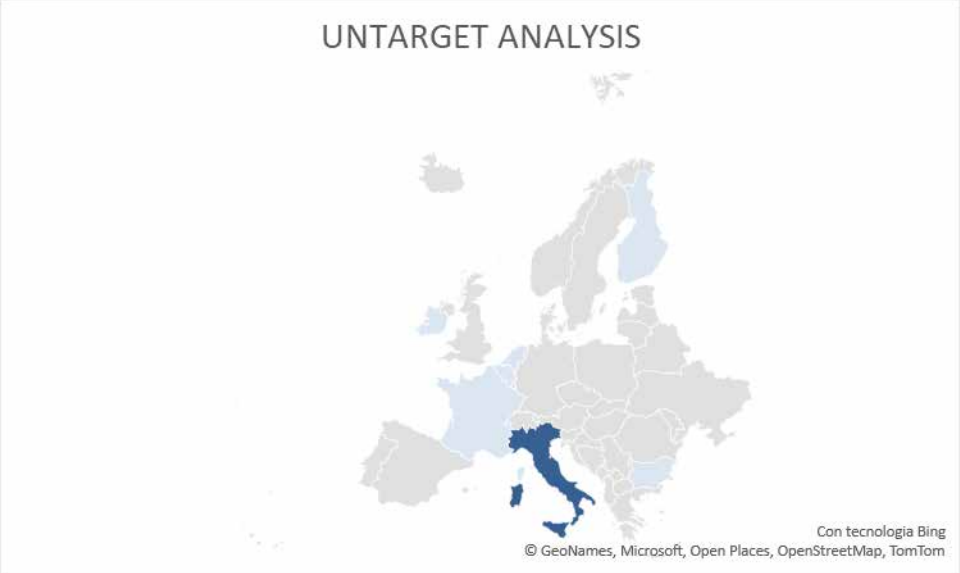
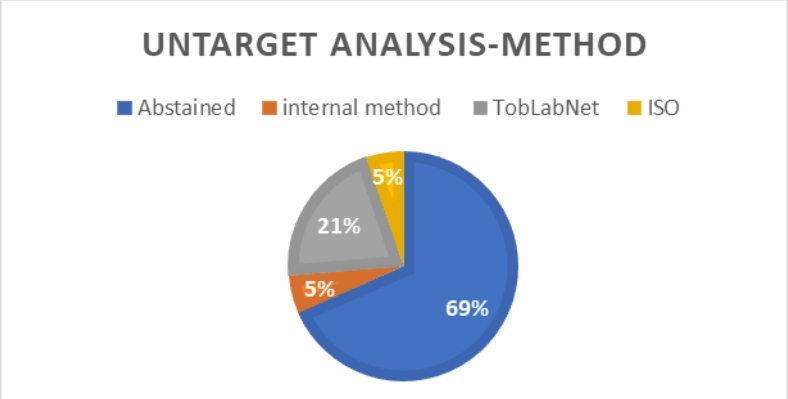
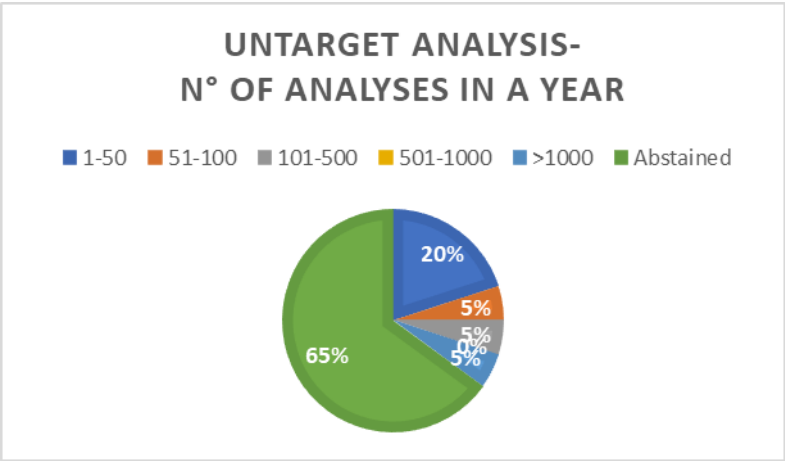


Figure 42. Results, expressed in percentage, of questions about the standard reference method for untarget analysis and the number of analyses done in a year by the laboratories.

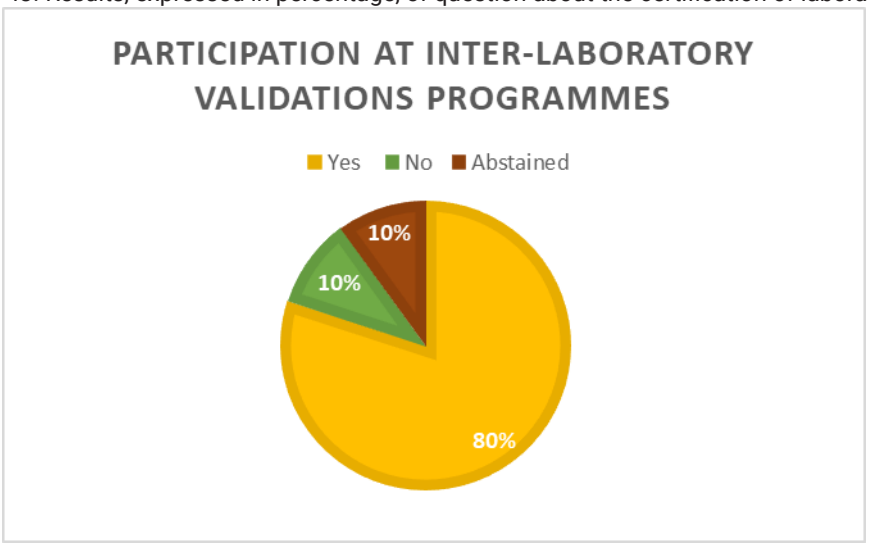


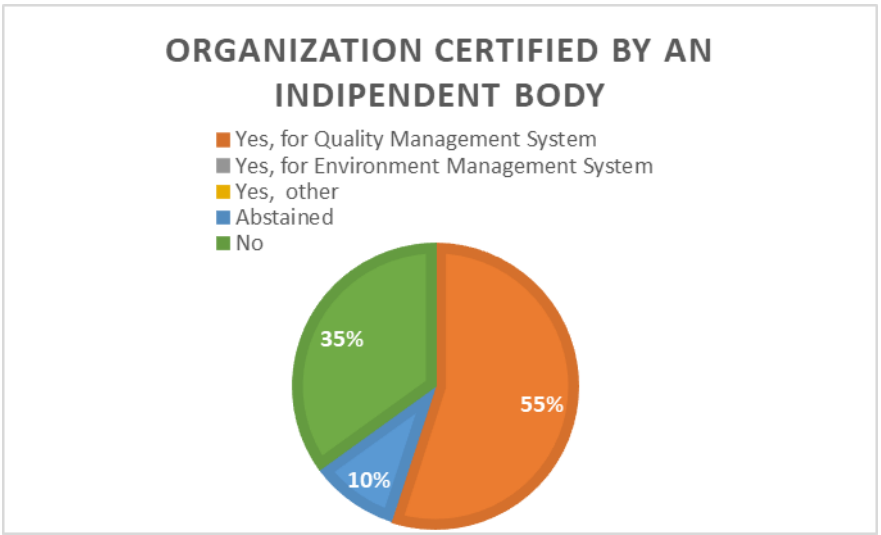


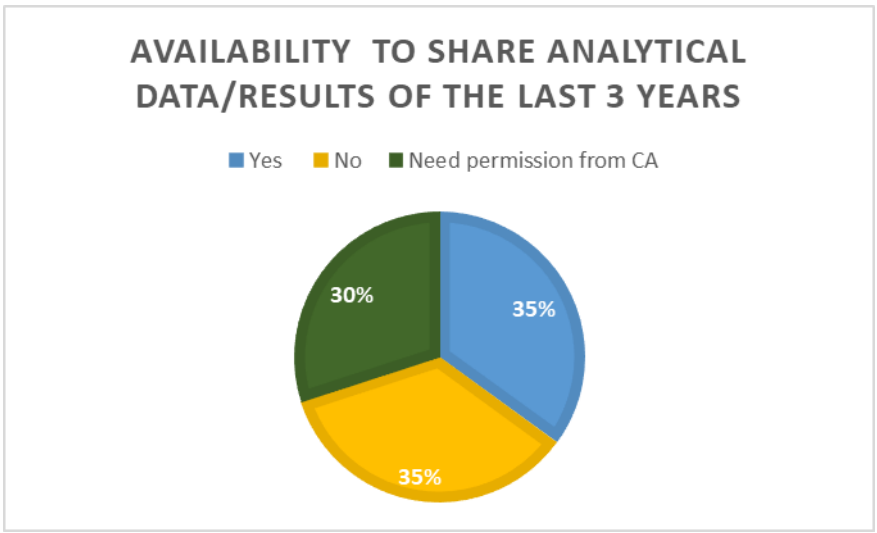
3.5 Certifications of laboratory and participation to inter-laboratory study

The last three questions in the questionnaire aimed to provide information on certification systems of the laboratories and inter-laboratory study participation.

Figure 43. Results, expressed in percentage, of question about the certification of laboratories.







4. Conclusions based on the questionnaire

The data reported here represent results exclusively from the available laboratories list, which includes 62 EU State Institutions, approved laboratories as per Article 4(2) of the TPD, and 4 Italian public universities.

Laboratories

45% of Laboratories that participated to the survey declared independency from industry, 20% are related to the tobacco industry and the last 35% didn't answer to this question. Compared to our 2020 survey, where no laboratories declared non-independency, it is notable that in this survey, 20% of the participating laboratories did. Although the number of participants is small, this significant change must be highlighted. 70% of laboratories seems to be larger than 100 m2 and were built or renovated after 1990. About smoking rooms, less than the half of laboratories declared to have one and the 30% of laboratories have any smoking rooms and the last 30% of survey participants abstained to answer to this question. The 55% of laboratories responded to the question concerning the laboratory information technology systems, reporting the name of the laboratory technology system. About staff qualification, the majority of laboratories only have 1 administrative employee and 1 management employee, technicians are the largest group in the laboratories staff.

Instrumentation

A list of detailed equipment is reported in annex II. In general, there is coherence, among parameters, of instrumentation used especially for cigarettes methods as noticed for TNCO, the most analysis ran by these laboratories. The most common approach for TNCO analysis is GC-FID. While for e-cigarettes laboratories, the most common analysis is the nicotine and non-target analysis. For nicotine analyses the most used approaches are both GC-MS and GC-FID, while for non-target analysis GC-MS is the common one.

4.1 Cigarettes

EU distribution of laboratories for testing

Results indicates that 10 laboratories perform analysis on cigarettes, based in 9 different member states (MS).

Type of parameters tested

The most diffused parameter verified is TNCO checked by 8 laboratories across 7 different countries. This is followed by aldehydes, which are monitored by 3 laboratories in 3 different MS, and cigarettes ventilation by 3 laboratories in 2 different MS. Nitrogen oxides content in cigarettes is not analysed by any participants laboratories as reported in JATC1. 2 Laboratories detected VOCs, ammonia tobacco filler in cigarettes, 2 laboratories ran untarget analysis, while only one laboratory analysed N-Nitrosamines and metals.

Number of parameters

The Netherlands is the most active MS, with verification on 6 different compounds or classes of compounds, followed by Bulgaria with 5, Germany with 4, Belgium and Hungary with 2 different compounds or classes of compounds. Italy, Latvia, France and Spain measure only one compound or classes of compounds while the other MS don't measure any analytes.

Analytical methods

Regarding TNCO, all laboratories that answered to this question follow ISO methods. For other commonly measured parameters as aldehydes, out of 3 laboratories one followed ISO method, one follow standard Coresta method and one used a self-developed method. For other additives analysis, one laboratory followed ISO method and one an Internal method. Laboratories, that analysed cigarettes ventilation, followed ISO method.

Number of analyses performed per year

TNCO: 15% of laboratories declared between 50-100 analyses, 20% in the range of 101-500 and 5% more than 500 analyses per year. Aldehydes: only 2 laboratories over 3 declared the number of analyses per year one between 10-20 and the other one between 20-30. For Additives analysis, one laboratory declared between 20-30 analyses per year, and two laboratories between 1-10. Cigarettes ventilation: one of laboratory declared a number of analyses per year in the range of 200-300, one between 101-200 and one laboratory between 1-100 analyses. Other commonly measured parameters are less than 50 per year.

4.2 E-cigarettes and NTP

EU distribution of laboratories for verification

Results indicates that 18 laboratories across 13 member states perform analysis on e-cigarettes.

Type of parameters

The most diffused parameter verified in e-cigarettes and NTP is nicotine. 15 laboratories across 11 countries analysed nicotine's content, followed by untarget analysis (9 labs in 7 MS), flavours (6 labs in 6 MS), aldehydes (6 labs in 5 MS), glycols (5 labs in 4 MS), metals (4 labs in 4 MS).

Number of parameters

Italy and France are the most active MS, with verification on 7 different compounds or classes of compounds, followed by Belgium and Germany with 6, Finland with 5, the Netherlands with 3 different compounds or classes of compounds. Analytes measured in all other MS are 2 compounds or classes of compounds or less.

Analytical methods

Regarding nicotine, that is the most analysed chemical compounds, 40% of laboratories follow ISO and 20% SOP TobLabNet method, while 15% of laboratories used internal method. For untarget approach 20% follow TobLabNet SOP method, 5% developed an internal method and 5% used ISO method. In some case the laboratories did not declare the method used. For Flavours analysis, 15% of laboratories used an internal method. For aldehydes, glycols and metals, only few laboratories declared the type of method followed and the others abstained to answer.

Vitamins stimulant additives and CMR substances are "regulated ingredients" by TPD, only two laboratories declared vitamins analyses (in 2020 none) while CMR substances are analysed by 3 laboratories and stimulants additives by 2 laboratories.

Number of analyses performed per year

Nicotine: 35% of laboratories declared a number of analyses in the range of 1-50 per year, 10% in the range of 51-100, 15% in the range of 101-500 and 5% between 501-1000. Untarget: 20% of laboratories declared a number of analyses in the range of 1-50, followed by a 5% and 5% of laboratories in the range of 51-100 and > 1000 analyses per year respectively. For flavours 15% of laboratories declared a number of analyses in the range of 1-50 per year and 5% between 501-1000. For Metals 10% of laboratories declared a number of analyses in between 1-50 per year, 5% in the range 101-500, 5% between 501-1000. For glycols 15% in the range of 1-50 per year and 5% between 51-100. For aldehydes: 15% of laboratories declared 1-50 analyses per year, and 15% between 101-500 and 5% in the range of 501-1000. Other commonly parameters are measured less than 100 per year, slightly more for VOC.

TOBLABNET SOP 11-SOP 16

Developed by JATC 1, SOP 11 for analysing nicotine, glycerol and propylene glycol is used by one laboratory out 6 that declared to perform this kind analysis and out 20 total laboratories. SOP 16, developed during JATC2 and currently under validation, for NTA approach in e-liquids, was used by 21% laboratories.

5. Annex I - The questionnaire presented to the MS laboratories

Confidential Data, used to check for overlaps of respondents: _____

Family name of participant: _____

Laboratory: _____

_____

Address: _____

_____

1. Please describe your laboratory

Member State	Free text
City	Free text
Year of construction of the laboratory or years since last renovation	AAAA
Overall area of laboratory	m2
Total area of smoking room(s)	m2
Total area of instrument room(s)	m2
Laboratory Information Technology System	Y/N
Amount of time dedicated to tobacco analysis	%
Amount of overall income coming from tobacco industry	%
Amount of time dedicated to e-cigarette analysis	%
Amount of overall income coming from e-cigarette industry	%

2. Please describe the staff currently working in your laboratory

	Total number of staff	Years of experience (average)
Administrative	n	n
Management	n	n
Technicians	n	n
Student/Post doc/Academic	n	n
Other	n	n

3. Does your laboratory develop also methods for new analytes?

☐ Yes

☐ No

☐ Only for e-cigarettes or novel tobacco products

☐ other

4. Please list the smoking / vaping machines you use

	Total number of	Years of production
Smoking machine	n	AAAA
Vaping Machine	n	AAAA
Other	n	AAAA

5. Please list the analyses and methods you have performed on cigarettes in the last three years (2021-2024)

	1 Standard reference method (ISO, EN, etc.)	2 Extraction method	3 Analytical Method	4 Analytical instrument	5 Number of instrument(s)	6 Model of instrument	7 Approximate number of analysis in a year
TNCO	Free text	Free text	Free text	Free text	n	Free text	n
Nitrogen Oxides	"	"	"	"	"	"	"
VOCs (phenolic, aromatic amines, 1,3 butadiene, benzene, BaP, ...)	"	"	"	"	"	"	"
Tobacco Specific N- Nitrosamines	"	"	"	"	"	"	"
Aldehydes (Formaldehyde, acetaldehyde, acrolein)	"	"	"	"	"	"	"
Metals	"	"	"	"	"	"	"
Ammonia in tobacco filler	"	"	"	"	"	"	"
Humectants in tobacco filler	"	"	"	"	"	"	"
Other additives contained in cigarettes and roll-your-own tobacco subject to enhanced reporting obligations	"	"	"	"	"	"	"
Cigarettes ventilation	"	"	"	"	"	"	"
Untarget	"	"	"	"	"	"	"

6. Please list the analyses and methods you have performed on e-cigarettes, herbal products and novel tobacco products, in the last three years (2021-2024)

	1 Standard reference method (ISO, EN, etc.)	2 Extraction method	3 Analytical Method	4 Analytical instrument(s)	5 Number of instrument(s)	6 Model of instrument	7 Approx-imate number of anal-ysis in a year
Nicotine	Free text	Free text	Free text	Free text	n	Free text	n
Flavours	"	"	"	"	"	"	"
Vitamins or other additives used as food supplements	"	"	"	"	"	"	"
Stimulant additives such as caffeine or taurine	"	"	"	"	"	"	"
Substances which have CMR properties	"	"	"	"	"	"	"
Glycols other than propylene glycol	"	"	"	"	"	"	"
Aldehydes (formaldehyde, acetaldehyde, acrolein)	"	"	"	"	"	"	"
Metals	"	"	"	"	"	"	"
Untarget	"	"	"	"	"	"	"

7. Is your organization certified by an independent body?

☐ Yes, for Quality Management System

☐ Yes, for Environment Management System

☐ Yes, for Occupational health and Safety Management System

☐ Yes, Other, specify?

☐ No

8. Is your laboratory accredited by an independent body for testing and calibration (ISO/IEC 17025)?

☐ Yes

☐ No

☐ In Progress

9. Does your lab participate in inter-laboratory validations programmes?

☐ Yes

☐ No

10. Is your laboratory available to share analytical data/results of the last 3 years (period 2021-2024) Data will be kept confidential and used to understand EU member states verification results.

☐ 1 Yes

☐ 2 Only in an aggregated form

☐ 3 Need permission from CA

☐ 4 No

if you answered 1-3 write an e-mail contact _____

Thank you very much for your kind cooperation. Please kindly provide us the contact details (responsible person and his/her email) here. We will reach you by email soon in the future.
responsible.person@mail.com

6. Annex II - Instrumentation in use in CA approved laboratories as from the survey.

Table 1. Cigarettes

	Analytical instrument	Number of instrument(s)	Model of instrument
TNCO			
Italy	Smoking machine+IR, GC -FID	4	Smoking machine SMA450 Cerulean/ GC Thermo fisher
Hungary	Cigarettes smoking machine, GC, Karl fisher tritator, NIR CO analyser	4	Borgwaldt RM 20D, Agilent, Methrohm 716DMS, Borgwaldt
Bulgaria	Smoking machine, GC	1	GC agilent 7890
Germany		2	RM 200A
Latvia	Rotary smoking machine, GC	2	RM20, PE Clarus 500
The Netherlands	GC-FID/GC-TCD	2	Schimadzu GC-10
Germany	GC-FID	2	RM 20 H(LX20) Agilent 7890
Spain		1	RM 20H
	Analytical instrument	Number of instrument(s)	Model of instrument
Nitrogen Oxides			
	Analytical instrument	Number of instrument(s)	Model of instrument
VOCs			
The Netherlands	LC-MS	2	Agilent 7890
Germany			
	Analytical instrument	Number of instrument(s)	Model of instrument
Tobacco specific N- nitrosamines			
The Netherlands	LC-MS	1	Sciex Triple quadrupole 6500 MD
	Analytical instrument	Number of instrument(s)	Model of instrument
Aldehydes			
Bulgaria	HPLC	1	Filtrona,Perkil Elmer
Germany			RM 200A
The Netherlands	LC-DAD	1	sCHIMADZU
	Analytical instrument	Number of instrument(s)	Model of instrument
Metals			
France	ICP MS	1	Analytic IENA
	Analytical instrument	Number of instrument(s)	Model of instrument
Ammonia in tobacco filler			
Bulgaria	Autoanalyser	1	Autoanalyser AA3, Seal
The Netherlands	LC-IC	1	Schimadzu LC-10
	Analytical instrument	Number of instrument(s)	Model of instrument
Humectants in tobacco filler			
Bulgaria			
	Analytical instrument	Number of instrument(s)	Model of instrument
Other additives			

Belgium	HS-GC-MS	1	Gc agilent 6890. 5973 with automatic injecteur
Hungary	GC, Smoking machine	2	Agilent 6890, Borgwaldt RM 20D
	Analytical instrument	Number of instrument(s)	Model of instrument
Cigarettes ventilation			
Germany		1	OMI
The Netherlands			Cerulean quantum solo
Germany			
	Analytical instrument	Number of instrument(s)	Model of instrument
Untarget			
Belgium	GC-MS	2	GC-agilent 7890a-MS 5975C
Bulgaria	IP 10 Tester	1	Tester Borgwaldt IP 10

Table 2. E-cigarettes

	Analytical instrument	Number of instrument(s)	Model of instrument
Nicotine			
Belgium	UPLC-DAD, GC-MS/FID	4(UPLC/DAD), 3 (GC-MS/FID)	Gc agilent 7890A, ms 5975C, Waters UHPLC-DAD
Italy	GC-FID	2	Gc-Thermo fisher 1300
Hungary	GC-MS	1	Agilent
Finland	GC-MS	15	Agilent
Bulgaria	GC-MS	1	Agilent
Germany		1	LM4E
Latvia	GC-FID	1	PE Clarus 590
The Netherlands	GC-FID	2	Schimadzu- GC-MS
Italy	GC-MS	1	Agilent 7820a, 5975b
Italy	GC-MS	4	Agilent, Thermofisher orbitrap
France	GC-MS/FID	3	
Germany	GC-FID	2	Agilent 7890A, Agilent 8890
Czech Republic	GC-MS	1	Agilent 7890 A+5975c
France	ICP-MS	1	Analytic IENA
Spain			
	Analytical instrument	Number of instrument(s)	Model of instrument
Flavours			
Greece	GC-MS	1	
Belgium	HS-GC-MS/MS	1	Gc-Agilent 6890, MS 5973-automatic injecteur
Finland	ITEX-HS-		Agilent
Italy	GC-MS	1	Agilent 7820a, 5977b
France	GC-MS/FID	2	
Germany	GC-MS	1	Thermo Fisher ISQD 1611553
	Analytical instrument	Number of instrument(s)	Model of instrument
Vitamins			
Belgium	GC-MS	2	Agilent
Germany	HPLC-DAD/FLD		

	Analytical instrument	Number of instrument(s)	Model of instrument
Stimulants additives			
Belgium	LC-MS(taurine)/ GC-MS(caffein)	LC-MS(4)/ GC-MS(2)	Bruker and waters/Agilent
France	HPLC	2	
	Analytical instrument	Number of instrument(s)	Model of instrument
Glycols			
Finland	ITEX-HS-GC-MS		Agilent
Germany			LM4E
Italy	GC-MS	4	Agilent
France	GC-MS	3	
Germany	GC-FID	2	Agilent
	Analytical instrument	Number of instrument(s)	Model of instrument
CMR substances			
Italy	HPLC-ORBITRAP	1	Dionex UltiMate 3000 UHPLC Thermo Scientific Q Exactive
Belgium	HS-GC-MS	1	Agilent
Germany	GC-MS	1	Thermo fisher ISQD 1611553
	Analytical instrument	Number of instrument(s)	Model of instrument
Aldehydes			
Greece	HPLC	1	Agilent
Finland	ITEX-HS-GC-MS		
Germany			LM4E
Italy	GC-MS	1	Agilent 7820A, 5977B
Italy	GC-MS	4	Agilent
France	HPLC	2	
	Analytical instrument	Number of instrument(s)	Model of instrument
Metals			
Ireland	ICP-MS	1	Agilent 7700
The Netherlands	ICP-MS		Thermo IQAP RP
Italy	ICP-MS		Agilent 7700 series ICP-MS
France	ICP-MS		
	Analytical instrument	Number of instrument(s)	Model of instrument
Untarget			
Belgium	GC-MS	2	Agilent
Italy	GC-MS, GCXGC-MS, HRMS	3	LECO 1500
Ireland	Schimadzu GC-MS QQQ	1	TQ8030
Finland	ITEX-HS-GC-MS		Agilent
Bulgaria	Autoanalyzer	1	Autoanalyzer
The Netherlands	GC-MS		Thermo IQAO RQ
Italy	GC-MS	1	Agilent 7820A, 5977B
Italy	GC-MS	4	Agilent, Thermo fisher orbitrap
France	GC-MS	1	

7. Annex III - Analysis performed on cigarettes and NTP

	TNCO	Nitrogen oxides	VOCs	N-nitrosamines	Aldehydes	Metals	Ammonia	Humectants	Other additives	Cigarette ventilation	Untarget	n
Greece												0
Belgium									√		√	2
Italy												0
Italy	√											1
Ireland												0
Hungary	√								√			2
Finland												0
Lithuania												0
Bulgaria	√				√		√	√			√	5
Germany	√				√					√		3
Latvia	√											1
The Netherlands	√		√	√	√		√			√		6
Greece												0
Italy												0
Italy												0
France												0
Germany	√		√							√		3
Czech Republic												0
Spain	√											1
France						√						1
n	8	0	2	1	3	1	2	1	2	3	2	

8. Annex IV - Analysis performed on e-cigarettes and NTP

	Nicotine	Flavours	Vitamins	Stimulant additives	Substances CMR properties	glycols	Aldehydes	Metals	Untarget	n
Greece		√					√			2
Belgium	√	√	√	√	√				√	6
Italy									√	1
Italy	√									1
Ireland								√	√	2
Hungary	√									1
Finland	√	√				√	√		√	5
Lithuania										0
Bulgaria	√								√	2
Germany	√					√	√			3
Latvia	√									1
The Netherlands	√							√	√	3
Greece										0
Italy	√	√			√		√	√	√	6
Italy	√					√	√		√	4
France	√	√		√		√	√	√	√	7
Germany	√	√	√		√	√				5
Czech Republic	√									1
Spain	√									1
France	√									1
	15	6	2	2	3	5	6	4	9	

Abbreviations

C: conclusion (it refers to the number of the conclusion(s) of WP8 survey, see ANNEX 1) CA: Competent Authority

MS: Member States

TPD: Tobacco Products Directive WHO: World Health Organization