

Report n° 14/205

**Analysis of 5 e-liquids – Quantification of nicotine,
glycerin and propylene glycol by GC-MS**

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Study for : INSMOKE
Attention of : Mr MEILE
Customer request nr : 0885-1416
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Scientific Approval,



Quality Approval,



Executive summary

The objective of the request is to determine the content of nicotine, propylene glycol and glycerin in 5 liquids for e-cigarettes. The samples were analyzed by GC-MS (gas chromatography coupled with a mass spectrometer detector) after a dilution step. The results are presented in the table below.

		mg/ml liquid			propylene glycol/glycerin proportion (%) (*)	
		nicotine	propylene glycol	glycerin	propylene glycol	glycerin
apple queen	404E001	<LD	564	323	56	32
cool mint	404E002	<LD	531	368	53	37
maracuja	404E003	<LD	556	331	56	33
stardust	404E004	<LD	551	378	55	38
virginia	404E005	<LD	562	343	56	34

(*): the density used for the calculation: 1 g/ mL
< LD: under limit of detection (1mg/ml)

No nicotine was detected in any of the liquids. It matches with the indication on the bottles. The proportion of propylene glycol and glycerin is almost the same in the 5 liquids.

1. Introduction

The purpose of the study is to determine the content of nicotine, propylene glycol and glycerine in 5 liquids for e-cigarettes.

2. Materials and methods

Materials and samples

The samples were received the 3rd of April 2014. The references are presented in Table 1.

Your reference	Our reference
Apple queen (without nicotine)	404E001
Cool mint (without nicotine)	404E002
Maracuja (without nicotine)	404E003
Stardust (without nicotine)	404E004
Virginia (without nicotine)	404E005

Table 1: Sample references

Methods

The liquids were diluted in a solvent containing an internal standard (quinoline). The dilution factor is 100. After that, 1 µl of each sample was directly injected in a GC-MS.

The quantification of nicotine, propylene glycol and glycerin is made using external calibrations.

3. Results

The results are mentioned in Table 2. Nicotine is not detected in any of the samples and the propylene glycol and glycerine proportions are almost the same for the 5 liquids.

		mg/ml liquid			propylene glycol/glycerin proportion (%) (*)	
		nicotine	propylene glycol	glycerin	propylene glycol	glycerin
apple queen	404E001	<LD	564	323	56	32
cool mint	404E002	<LD	531	368	53	37
maracuja	404E003	<LD	556	331	56	33
stardust	404E004	<LD	551	378	55	38
virginia	404E005	<LD	562	343	56	34

(*): the density used for the calculation: 1 g/ mL

<LD: under limit of detection (1mg/ml)

Table 2: analysis results

4. Conclusion

The absence of nicotine confirms the bottle labelling. On the other hand, there is no indication regarding the propylene glycol and glycerine content. Therefore it is not possible to compare the concentrations with the expected values.