

# TEST REPORT

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**Request date :** *Quote signed 1 July 2016*

**Subject :** Analysis of e-cigarette emissions for notification purpose.

**Sample identification :** E-cigarette JK019  
Resistance JC001

**Reference documents :** EU Directive 2014/40  
Standard XP D90-300 part 3 (Working draft 2016-03-25)

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It contains 6 pages.**

## 1. SAMPLE DESCRIPTION

Samples were received at the laboratory week 23/2016.

5 e-cigarettes with spare resistances showing the following particulars :

- **E-cigarette JK019**
  - Tank : 2 ml;
  - Power adjustable : 12W-70W;
  - Air inflow adjustable.
- **Resistance JC001**
  - 0.5  $\Omega$ .
  - 15-30 W



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## 2. LIST OF TESTS

Tests performed are summarized in table1.

Tests performed	Standards
Determination of nicotine content in emissions. Consistency of the emissions	XP D90-300 part 3 (Working draft 2016-03-25)
Determination of diacetyl, acetyl propionyl and acetoin content in emissions.	XP D90-300 part 3 (Working draft 2016-03-25)
Determination of formaldehyde, acetaldehyde and acrolein contents in emissions.	XP D90-300 part 3 (Working draft 2016-03-25)
Determination of antimony, nickel, chromium, cadmium, lead and arsenic contents in emissions.	XP D90-300 part 3 (Working draft 2016-03-25)

Table n° 1 : Tests performed

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### 3. TESTS

#### 3.1. PROCEDURES

Procedures used by LNE are in conformity with the listed standard.

Emissions tests were carried out using an analytical smoking machine Cerulean CET18 with power of electronic cigarette fixed at 30 W.

Tests were duplicated for each preparation between week 25 and 31/2016.

#### 3.2. RESULTS

The results are shown in the tables on the following pages.

##### 3.2.1 Determination of nicotine content in emissions and consistency of the emissions

Tests	Nicotine (mg/20 puffs)	Nicotine (mg/100 puffs)
1	6,00*	32,6
	6,31	
	6,78*	
	6,79	
	6,70*	
2	5,20*	30,4
	6,64	
	6,16*	
	5,51	
	6,85*	

Table 2 : Results

\* values used for determination of consistency of nicotine emission.

Measured content of nicotine (CAS# 54-11-5) in emission :  $31,5 \pm 2,7$  mg/100 puffs

Under the conditions of the test, the electronic cigarette **JK019** with resistance **JC001** "0.5  $\Omega$ " delivers a dose of nicotine at consistent levels.

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**3.2.2 Determination of diacetyl, acetyl propionyl and acetoin content in emissions**

<b>Tests</b>	<b>Diacetyl</b> (µg/200 puffs)	<b>Acetyl propionyl</b> (µg/200 puffs)	<b>Acetoin</b> (µg/200 puffs)
1	< 6	< 50	< 50
2	< 6	< 50	< 50

Table 3 : **Results**

Measured contents in emissions :

- diacetyl (CAS# 431-03-8) < 6 µg/200 puffs;
- acetyl propionyl (CAS# 600-14-6) < 50 µg/200 puffs;
- acetoin (CAS# 513-86-0) < 50 µg/200 puffs.

**3.2.3 Determination of formaldehyde, acetaldehyde and acrolein contents in emissions**

<b>Tests</b>	<b>Formaldehyde</b> (µg/200 puffs)	<b>Acetaldehyde</b> (µg/200 puffs)	<b>Acrolein</b> (µg/200 puffs)
1	5263	6345	866
2	114	< 40	296

Table 4 : **Results**

Measured contents in emissions :

- formaldehyde (CAS #50-00-0) 2688 ± 226 µg/200 puffs;
- acetaldehyde (CAS #75-07-0) n.c.;
- acrolein (CAS #107-02-8) 581 ± 49 µg/200 puffs.

*n.c. : average not calculable, one of the values is under the limit of detection or quantification*

### 3.2.4 Determination of antimony, nickel, chromium, cadmium, lead and arsenic contents in emissions

Tests	Antimony (Sb) (µg/200 puffs)	Nickel (Ni) (µg/200 puffs)	Chromium (Cr) (µg/200 puffs)	Cadmium (Cd) (µg/200 puffs)	Lead (Pb) (µg/200 puffs)	Arsenic (As) (µg/200 puffs)
1	< 1	< 0,3	< 0,2	< 0,2	2,3	< 0,2
2	< 1	< 0,3	< 0,2	< 0,2	< 0,3	< 0,2

Table 5 : **Results**

Measured contents in emissions :

- antimony (CAS #7440-36-0) < 1 µg/200 puffs;
- nickel (CAS #7440-02-0) < 0,3 µg/200 puffs;
- chromium (CAS #7440-47-3) < 0,2 µg/200 puffs;
- cadmium (CAS #7440-43-9) < 0,2 µg/200 puffs;
- lead (CAS #7439-92-1) n.c.;
- arsenic (CAS #7440-38-2) < 0,2 µg/200 puffs.

*n.c. : average not calculable, one of the values is under the limit of detection or quantification*

**Trappes, 18 August 2016**

**Le Responsable de l'essai**



**Laurent DUTERTRE**

**The results mentioned only apply to samples, products and equipment submitted to LNE and as defined in this document.**