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## RAPPORT D'ANALYSES – CALYPSO MARKETING REPARTITION GRANULOMETRIQUE

### Rappel des analyses :

Analyse de la répartition granulométrique par la technique de DLS : 4 échantillons.

- Eyeliner Black 92 Lot R1/1
- Eyeliner Black 92 Lot R1/2
- Eyeliner Black 92B Lot P1/1
- Eyeliner Black 92B Lot P1/2

## A- Répartition granulométrique

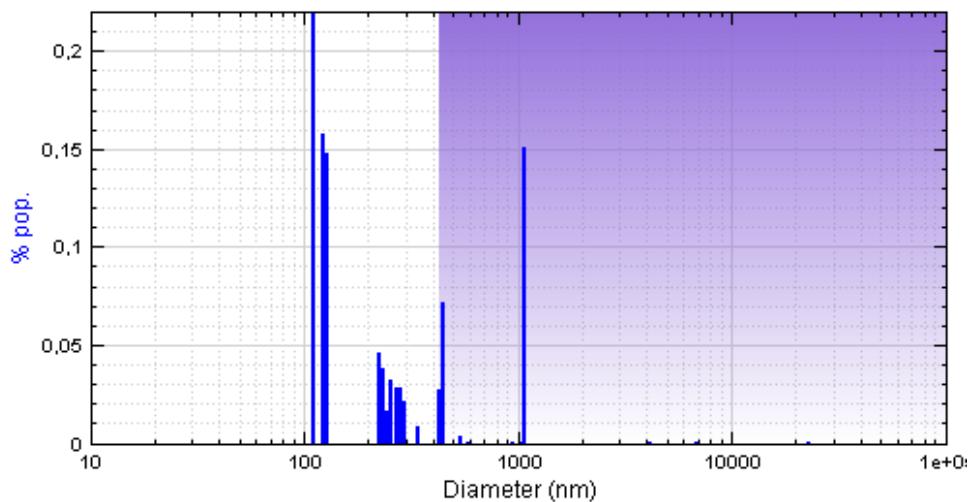
Les analyses de répartition granulométrique ont été réalisées par la technique de DLS (Dynamic Light Scattering) sur un appareillage de type Corduan DL 135.

Conditions expérimentales :

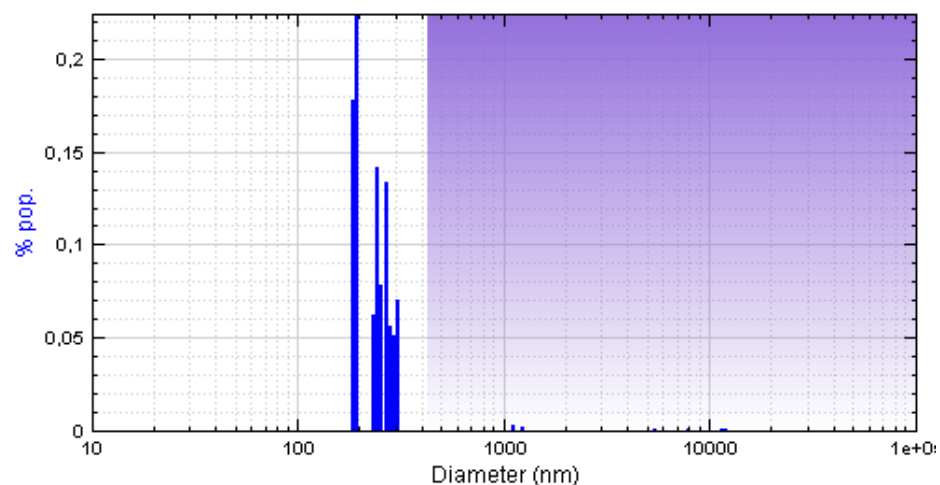
- 1,5 mg d'Eyeliner/ 25 ml d'Isopropanol
- Sonde à Ultrasons 5 min

## B- Distribution de la taille des particules :

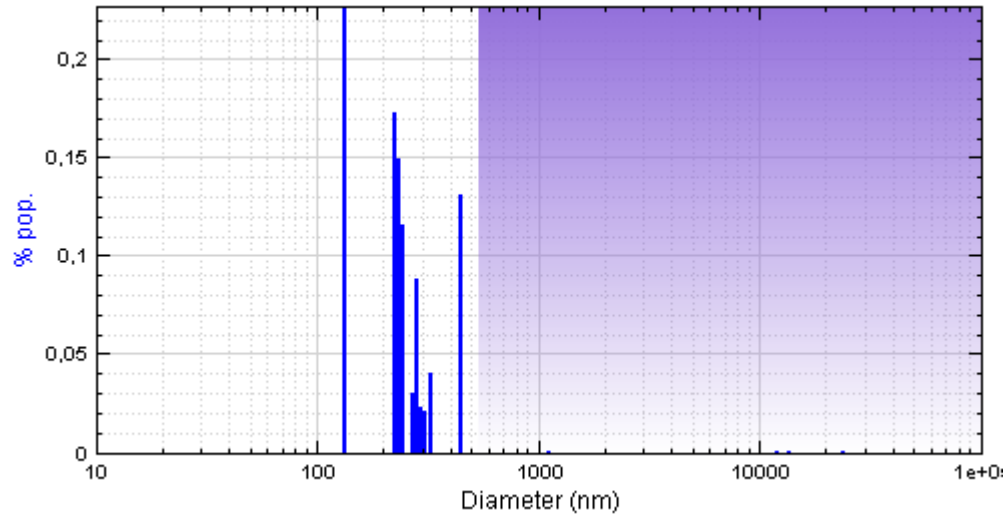
- Eyeliner Black 92 R1/1



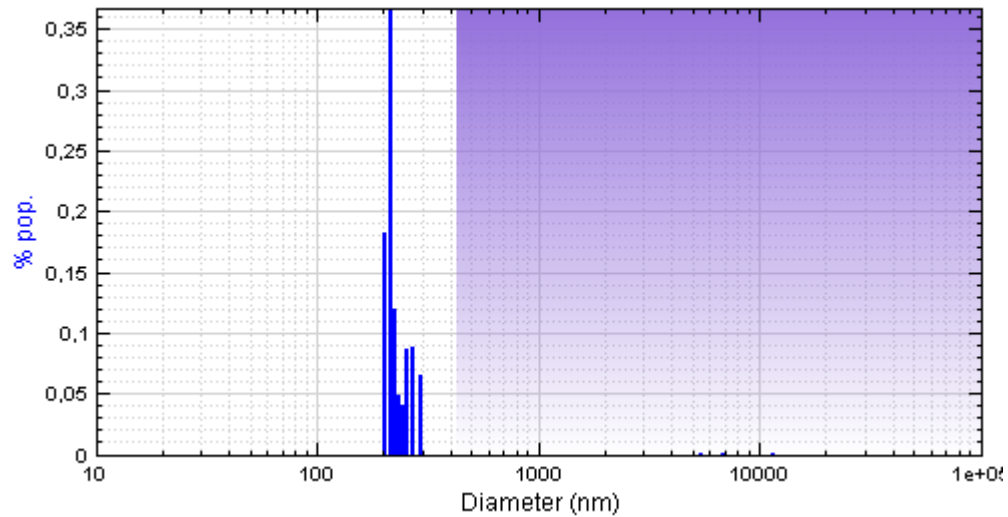
- Eyeliner Black 92 R1/2



- Eyeliner Black 92B P1/1

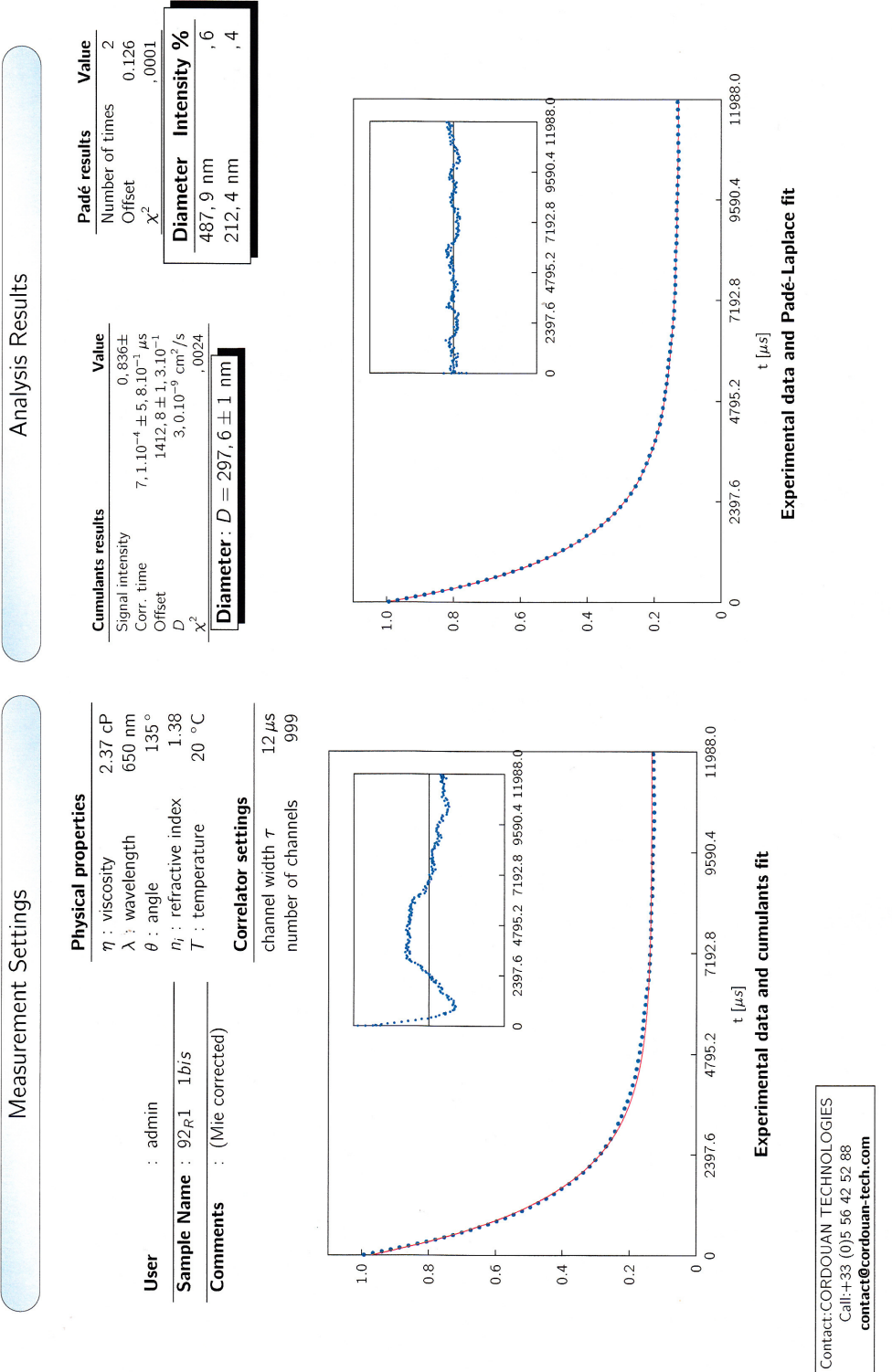


- Eyeliner Black 92B P1/2



## C- Rapports d'Analyses :

- Eyeliner Black 92 R1/1



- Eyeliner Black 92 R1/2

### Measurement Settings

**User** : admin

**Sample Name** : 92<sub>R1</sub> 2bis

**Comments** : (Mie corrected)

**Physical properties**

$\eta$  : viscosity 2.37 cP

$\lambda$  : wavelength 650 nm

$\theta$  : angle 135°

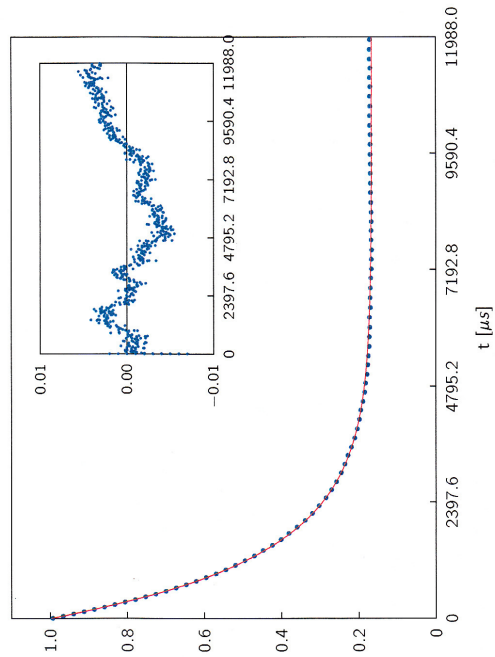
$n_i$  : refractive index 1.38

$T$  : temperature 20 °C

**Correlator settings**

channel width  $\tau$  12  $\mu$ s

number of channels 999



Experimental data and cumulants fit

### Analysis Results

**Cumulants results**

Signal intensity 0.83±

Corr. time  $7.8 \cdot 10^{-4} \pm 7.9 \cdot 10^{-1} \mu$ s

Offset  $1275 \pm 1.7 \cdot 10^{-1}$

$D$   $3.4 \cdot 10^{-9} \text{ cm}^2/\text{s}$

$\chi^2$  ,0002

**Diameter :  $D = 268,6 \pm 1 \text{ nm}$**

**Padé results**

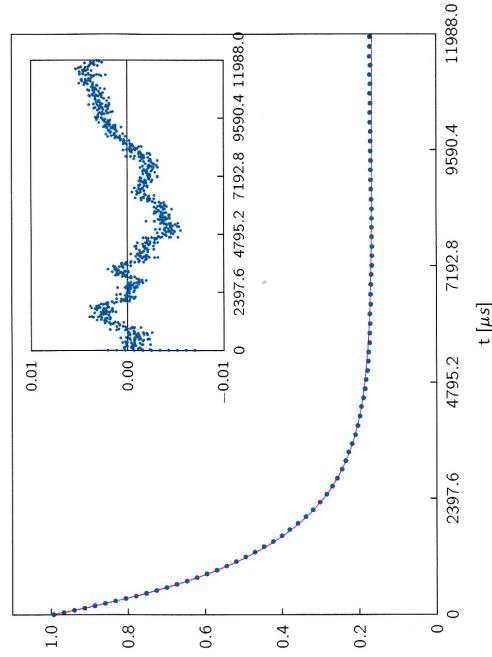
Number of times 1

Offset 0.168

$\chi^2$  ,0002

**Diameter Intensity %**

268,6 nm 1



Experimental data and Padé-Laplace fit

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contact@cordouan-tech.com

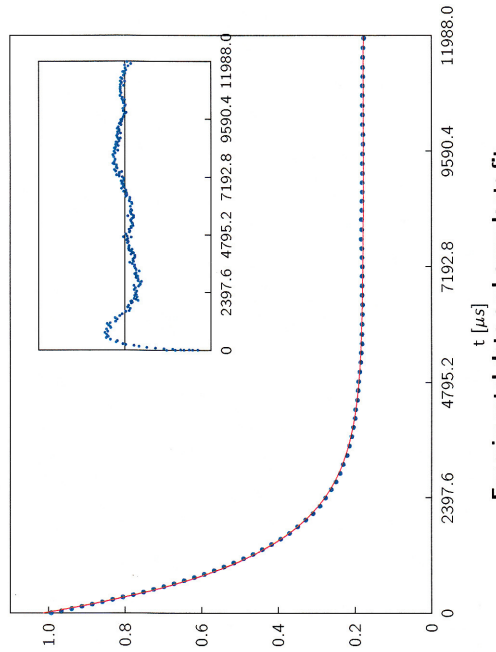
- Eyeliner Black 92B P1/1

### Measurement Settings

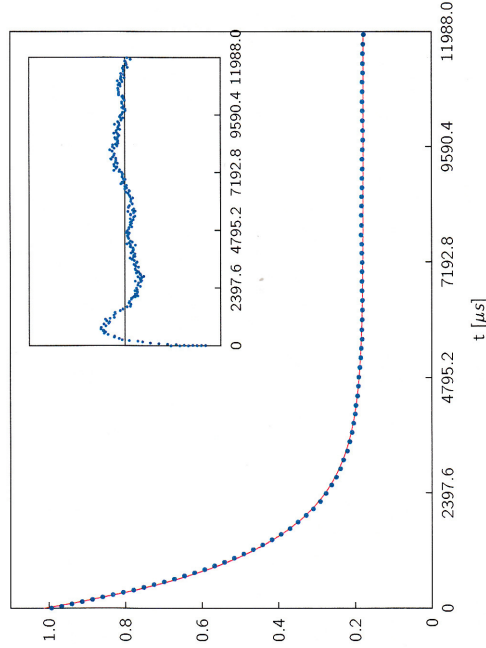
<b>User</b>	: admin
<b>Sample Name</b>	: 92B <sub>P</sub> 1 1b/s
<b>Comments</b>	: (Mie corrected)
<b>Physical properties</b>	
$\eta$ : viscosity	2.37 cP
$\lambda$ : wavelength	650 nm
$\theta$ : angle	135°
$n_i$ : refractive index	1.38
$T$ : temperature	20 °C
<b>Correlator settings</b>	
channel width $\tau$	12 $\mu$ s
number of channels	999

### Analysis Results

<b>Cumulants results</b>		<b>Padé results</b>	
Signal intensity	Value	Number of times	Value
Corr. time	$8,8 \cdot 10^{-4} \pm 8,4 \cdot 10^{-1} \mu$ s	Offset	0.179
Offset	$1130,8 \pm 1,8 \cdot 10^{-1}$	$\chi^2$	,0003
$D$	$3,8 \cdot 10^{-9} \text{ cm}^2/\text{s}$	<b>Diameter Intensity %</b>	
$\chi^2$	,0003	238,3 nm	1
<b>Diameter: <math>D = 238,3 \pm 1</math> nm</b>			



Experimental data and cumulants fit



Experimental data and Padé-Laplace fit

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• Eyeliner Black 92B P1/2

Analysis Results

Cumulants results		Padé results	
Signal intensity	Value	Number of times	Value
Corr. time	0.862 ±	Offset	0.154
Offset	$9.1 \cdot 10^{-4} \pm 1.0 \cdot 10^0 \mu\text{s}$	$\chi^2$	.0006
D	$1104.7 \pm 1.5 \cdot 10^{-1}$	<b>Diameter Intensity %</b>	
$\chi^2$	$3.9 \cdot 10^{-9} \text{ cm}^2/\text{s}$	Diameter	232,7 nm
<b>Diameter : <math>D = 232,7 \pm 1 \text{ nm}</math></b>		Intensity %	1

Measurement Settings

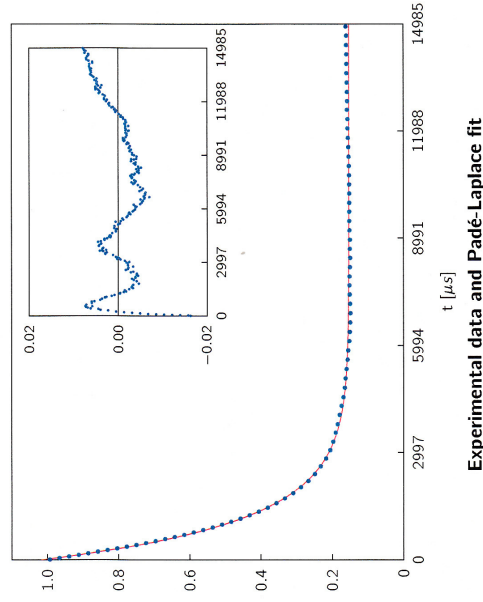
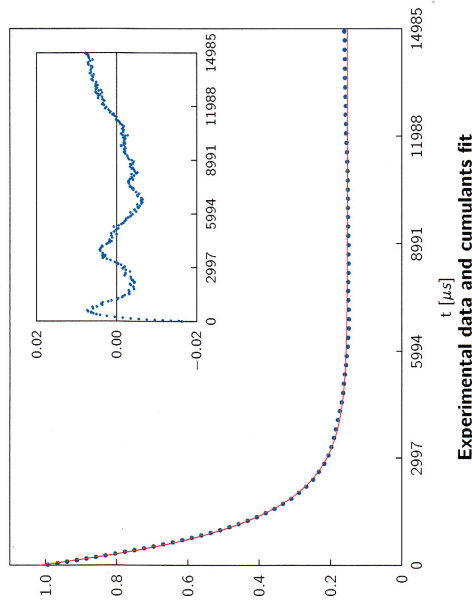
Physical properties	
$\eta$ : viscosity	2.37 cP
$\lambda$ : wavelength	650 nm
$\theta$ : angle	135°
$n_i$ : refractive index	1.38
T : temperature	20 °C

Correlator settings	
channel width $\tau$	15 $\mu\text{s}$
number of channels	999

User	: admin
Sample Name	: 92BP1 2M/e
Comments	: (Mie corrected)



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## D- Tableau récapitulatif et Conclusion :

Echantillons	Diamètre des particules (nm)	Appareillage	Conditions
92R1/1	110-1050	Corduan DL135	1,5mg / 25ml propan-2-ol 5 min sonde à ultrasons
92R1/2	190-200	Corduan DL135	1,5mg / 25ml propan-2-ol 5 min sonde à ultrasons
92BP1/1	120-440	Corduan DL135	1,5mg / 25ml propan-2-ol 5 min sonde à ultrasons
92BP1/2	200-300	Corduan DL135	1,5mg / 25ml propan-2-ol 5 min sonde à ultrasons

La technique (DLS) et les conditions d'analyse employées n'ont pas mis en évidence la présence de particules de taille nanométrique dans les échantillons d'eyeliner 92 lot R1/1, 92 lot R1/2, 92B lot P1/1, 92B lot P1/2 fournis par la société CALYPSO MARKETING. Par particule de taille nanométrique nous entendons des particules dont le diamètre est strictement inférieur à 100 nm.