"Cell Disruption"
TECHNOLOGY ANALYSIS
IN THE COSMETIC
CATEGORY

### "Cell Disrupted" Spirulina technology analysis

The uniqueness of "Cell Disrupted" spirulina elements, is the technology, which allows fragmentation of the cell. "Cell Disrupted" technology enables to extract and use all components of spirulina not damaging those active mate rials which are in the cells. As the membrane of spirulina is fragmented neither mechanically nor chemically all the elements that are there are prepared to their further effective use.

Manufacturing "Cell Disrupted" products modern scientific approach is applied paying attention to special needs of the market. The ingredients are of the highest quality GMP and ISO standards are observed in all stages of manufacturing, GMO are not used.

To evaluate the effects of the "Cell Disrupted" spirulina cosmetics product was chosen Antera 3D facial skin test. Thanks to this study, the skin change parameters for a group of subjects using a daily use cosmetic product are presented with a detailed analysis of changes throughout the study.

# Skin Analysis As It Should Be

The study was carried out with facial skin photography using Miravex Limited features Antera 3D. It is a powerful and versatile data handling and consultation tool for the analysis and measurement of:

- ✓ Wrinkles;
- ✓ Texture;
- ✓ Pigmentation;
- ✓ Redness.

This is real 3D imaging with high measurement precision, standardized lighting conditions, versatility of measurements and powerful data analysis.

This study aims to substantiate the effectiveness and benefits of cosmetic products from "Cell Disrupted" spirulina.



#### **Automatic matching**

Automatic Matching is a proprietary algorithm that precisely matches the selection on the Baseline image across all Follow-up images. Combined with the Real time registry of images, it makes image acquisition and analysis exact.

## Evaluation the therapeutic efficacy of "Cell Disrupted" spirulina technology to improve skin conditions

**Objective:** To determine the effect on the skin of the manufactured product - 1% spirulina extract made with "Cell Disrupted" technology. Product is designed for daily use. The following changes have been selected: wrinkles, texture (pores); pigmentation (melanin); redness (haemoglobin).

**Methods:** Study group is total of 15 persons age category from 16 age to 67 age. Investigation progress was two times interval: after first control photography passed two week and second after three weeks from second control photography. A total of sessions during intervals were conducted to each patient. Subjects used spirulina mist once daily in the evening.

**Results:** The Antera scores for wrinkle after 3 sessions were decreased level  $\pm$  25%. The Antera scores for pores after 3 sessions were decreased level  $\pm$  32%. The Antera scores for melanin levels after 3 sessions were decreased level  $\pm$  2,5%, variation  $\pm$  7,1%. The Antera scores for haemoglobin levels after 3 sessions were decreased level  $\pm$  3,9 %; variation  $\pm$  11 %;

**Conclusions:** The study proved that the "Cell disrupted" spirulina mist product improves all skin parameters recorded in the study.

#### Age and gender of the research subject



gabija 16 2022-10-28.an-img 10/28/2022 19:41



Gailė 36 2022-10-28.an-img 10/28/2022 17:34



Inga 47 2022-10-28.an-img 10/28/2022 16:45



Jurgita 44 2022-9-23.an-img 9/23/2022 13:40



ausra 53 2022-9-23.an-img 9/23/2022 16:09



Agata 24 2022-10-7.an-img 10/7/2022 19:31



egle 45 2022-10-28.an-img 10/28/2022 19:10



Egle 39 2022-10-28.an-img 10/28/2022 18:13



Justina 40 2022-9-23.an-img 9/23/2022 12:48



Kristina 36 2022-10-7.an-img 10/7/2022 15:58



Lukrecija 18 2022-9-23.an-img 9/23/2022 17:58



Marius 38 2022-10-7.an-img 10/7/2022 17:20



Paulius 40 2022-9-23.an-img 9/23/2022 13:12



Tomas 33 2022-9-23.an-img 9/23/2022 19:21



Valentina 67 2022-9-23.an-img 9/23/2022 17:11



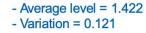
m24 n 2022-9-23.an-img

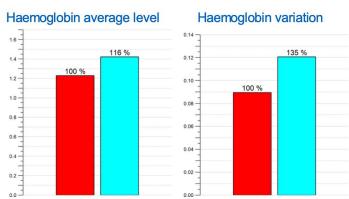


9/23/2022 15:44 • m24 n 2022-10-7.an-img

10/7/2022 19:30

- Average level = 1.229
- Variation = 0.0896





Circular selection: area = 89.7 mm<sup>2</sup> diameter = 10.7 mm



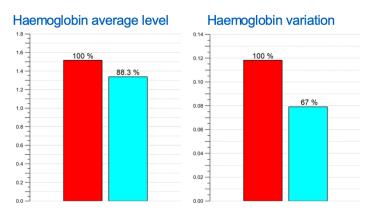
• m53 n 2022-9-23.an-img



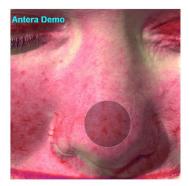
7.an-img 10/7/2022 19:07

- Average level = 1.516
- Variation = 0.118

- Average level = 1.339- Variation = 0.0792



Circular selection: area = 152.9 mm² diameter = 14.0 mm

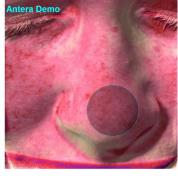




9/23/2022 17:34 • m45 n 2022-10-7.an-img



• m39 n 2022-9-23.an-img



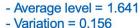
9/23/2022 18:13 • m39 n 2022-10-28.an-img

10/28/2022 18:12

- Average level = 1.666
- Variation = 0.101



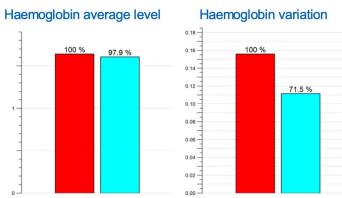
- Variation = 0.0957

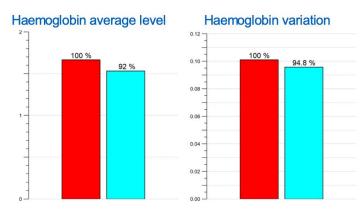


10/7/2022 16:53

- Average level = 1.607 - Variation = 0.112



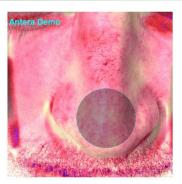




Circular selection: area = 185.2 mm<sup>2</sup> diameter = 15.4 mm Circular selection: area = 220.5 mm<sup>2</sup> diameter = 16.8 mm







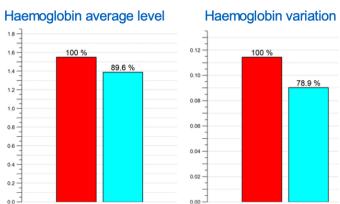
- Average level = 1.389

- Variation = 0.0903

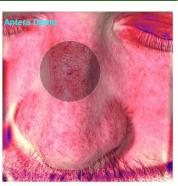
9/23/2022 19:20 v33 n 2022-10-28.an-img

10/28/2022 17:52

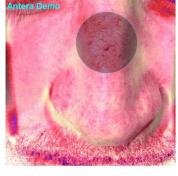
- Average level = 1.550
- Variation = 0.114



Circular selection: area = 314.8 mm<sup>2</sup> diameter = 20.1 mm



• v33 n 2022-9-23.an-img

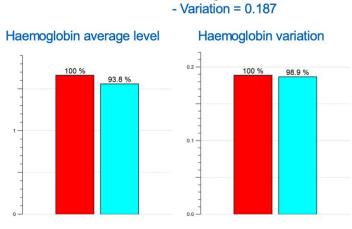




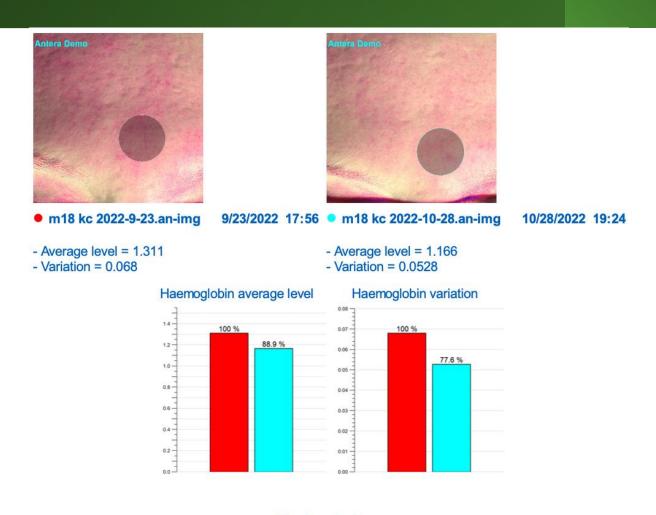
10/28/2022 17:52

- Average level = 1.664
- Variation = 0.189

- Average level = 1.561



Circular selection: area = 314.9 mm<sup>2</sup> diameter = 20.1 mm



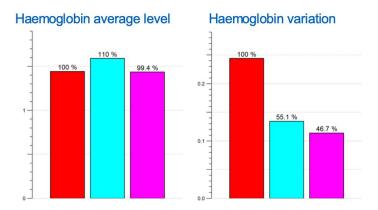
Circular selection: area = 185.2 mm<sup>2</sup> diameter = 15.4 mm



om 16 n 2022-10-28.an-img

10/28/2022 19:35

- Average level = 1.436
- Variation = 0.114



Circular selection: area = 265.6 mm<sup>2</sup> diameter = 18.4 mm



• m 16 n 2022-9-23.an-img

- Average level = 1.444

- Variation = 0.244



9/23/2022 17:20 • m 16 n 2022-10-7.an-img

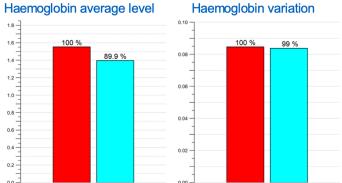
10/7/2022 18:45

- Average level = 1.591

- Variation = 0.135



- Average level = 1.553
- Variation = 0.0846

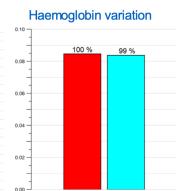


- Variation = 0.0838



9/23/2022 17:48 • m36 n 2022-10-28.an-img

- Average level = 1.396



Circular selection: area =  $220.5 \, \text{mm}^2$ diameter = 16.8 mm







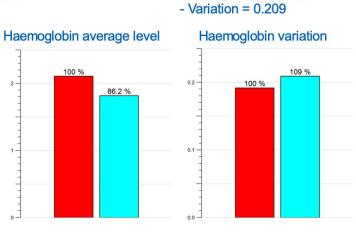


- Variation = 0.192

10/28/2022 17:3



- Average level = 1.816



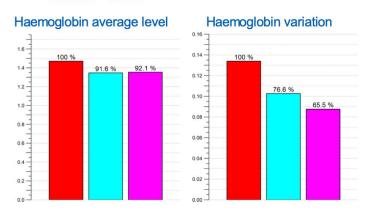
Circular selection: area = 220.5 mm<sup>2</sup> diameter = 16.8 mm



m40 n 2022-10-28.an-img

10/28/2022 16:25

- Average level = 1.354
- Variation = 0.0877





• m40 n 2022-9-23 12.47.57.an-img

- Average level = 1.471
- Variation = 0.134



9/23/2022 12:47 • m40 n 2022-10-7.an-img

10/7/2022 18:57

- Average level = 1.347
- Variation = 0.103

Circular selection: area =  $314.8 \text{ mm}^2$ diameter = 20.1 mm





Anter Demo

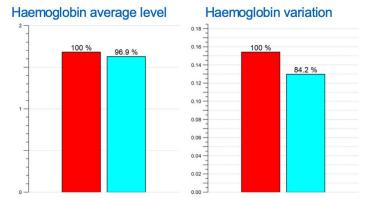
9/23/2022 13:39 • m44 n 2022-10-7.an-img

- Average level = 1.628

- Variation = 0.13

10/7/2022 18:22

- Average level = 1.681
- Variation = 0.154



Circular selection: area = 314.9 mm<sup>2</sup> diameter = 20.1 mm



m36 n 2022-9-23.an-img

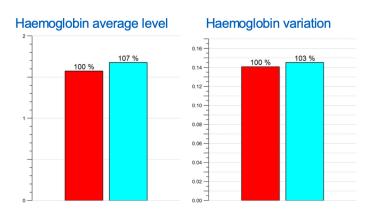


9/23/2022 12:07 • m36 n 2022-10-7.an-img

10/7/2022 16:01

- Average level = 1.574
- Variation = 0.141

Average level = 1.677Variation = 0.145



Circular selection: area = 185.1 mm<sup>2</sup> diameter = 15.4 mm



• m18 n 2022-9-23.an-img

9/23/2022 17:58 • m18 n 2022-10-28.an-img



v38 n 2022-9-23.an-img

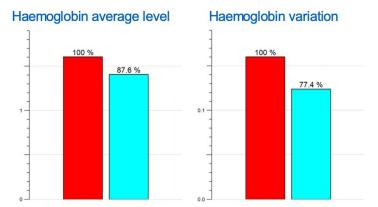


9/23/2022 15:26 • v38 n 2022-10-7.an-img

10/7/2022 17:19

- Average level = 1.604
- Variation = 0.16

- Average level = 1.405
- Variation = 0.124



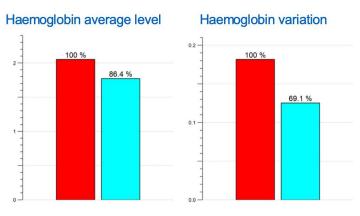
Circular selection: area = 376.3 mm<sup>2</sup> diameter = 21.9 mm



- Variation = 0.182

10/28/2022 19:22

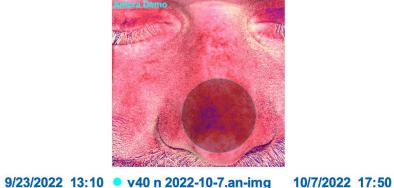
- Average level = 1.773
- Variation = 0.125



Circular selection: area = 452.0 mm<sup>2</sup> diameter = 24.0 mm











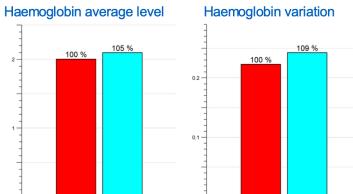
v40 n 2022-9-23.an-img

- Average level = 2.006

- Average level = 2.099

- Variation = 0.242

- Variation = 0.223

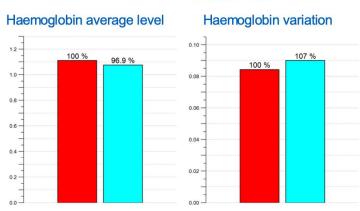


- Average level = 1.111

- Variation = 0.0843

- Average level = 1.076

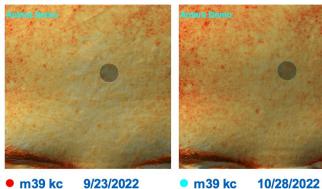
- Variation = 0.09



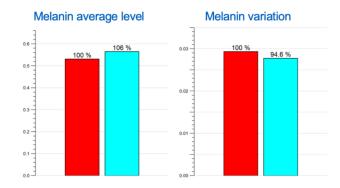
Circular selection: area =  $452.0 \text{ mm}^2$ diameter = 24.0 mm

Circular selection:  $area = 220.3 \text{ mm}^2$ diameter = 16.8 mm

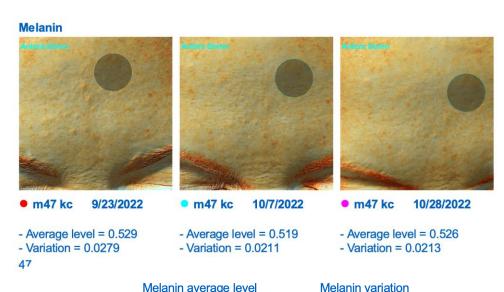
#### Melanin

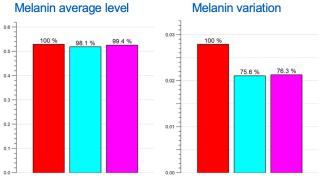


- Average level = 0.531
- Variation = 0.0293
- Average level = 0.565
- Variation = 0.0277

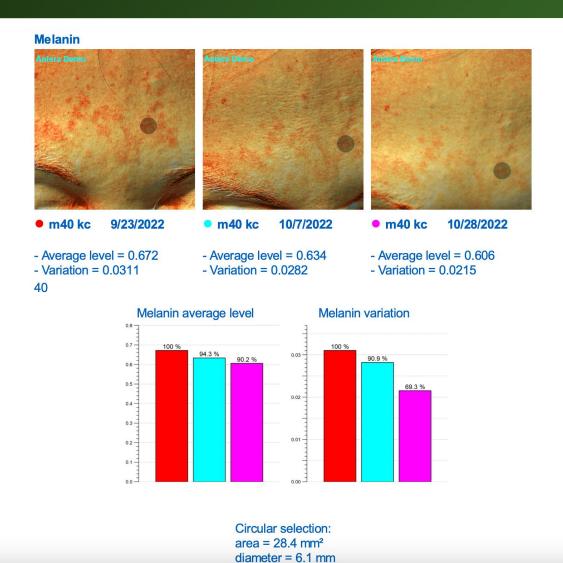


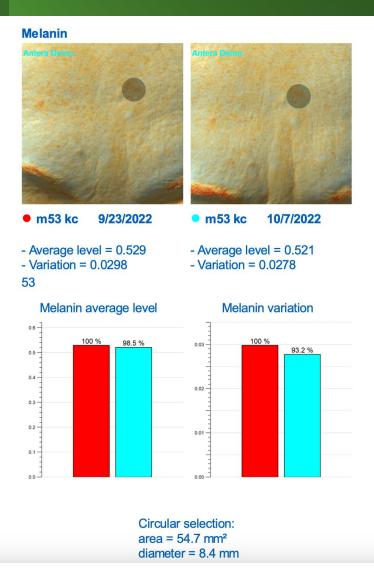
Circular selection: area = 33.1 mm<sup>2</sup> diameter = 6.5 mm

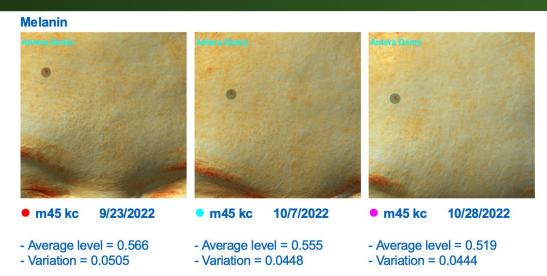


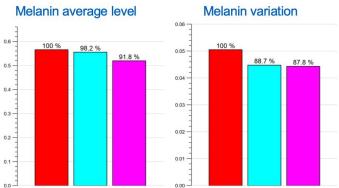


Circular selection: area = 152.9 mm<sup>2</sup> diameter = 14.0 mm

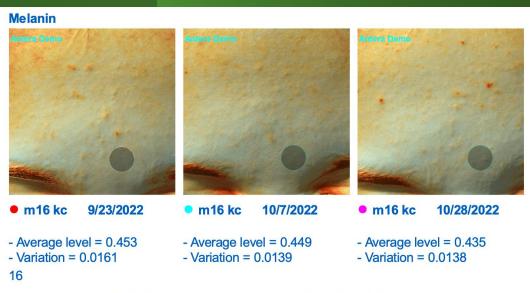


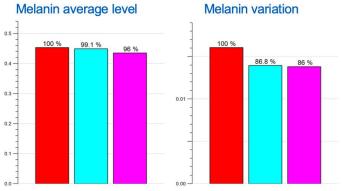




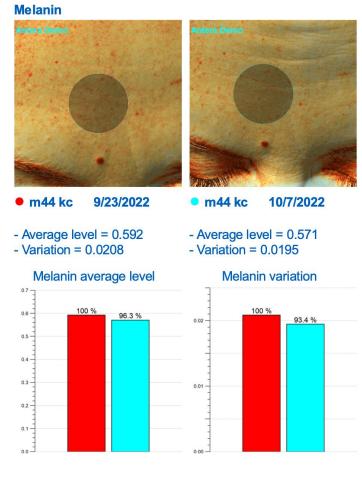


Circular selection: area = 9.3 mm<sup>2</sup> diameter = 3.5 mm

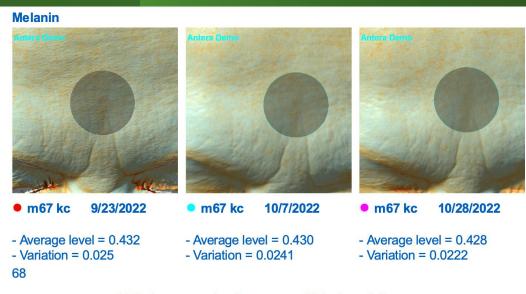


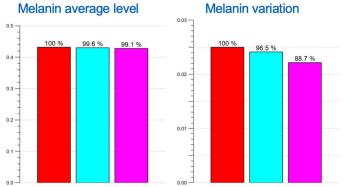


Circular selection: area = 54.8 mm<sup>2</sup> diameter = 8.4 mm

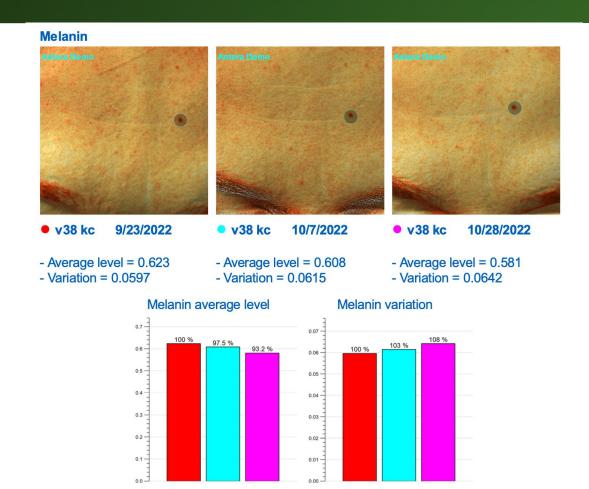


Circular selection: area = 314.9 mm<sup>2</sup> diameter = 20.1 mm





Circular selection: area = 376.2 mm<sup>2</sup> diameter = 21.9 mm



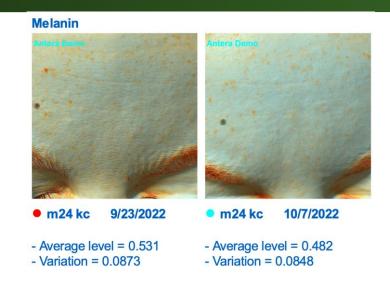
Circular selection:

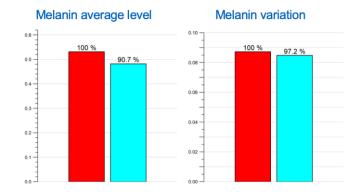
diameter = 4.4 mm

area = 15.0 mm<sup>2</sup>

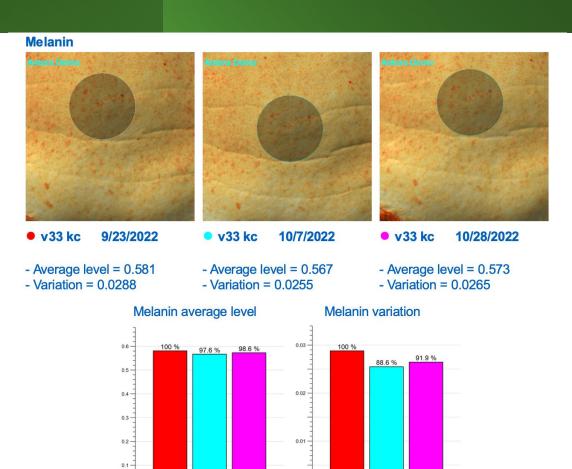
m36 kc 9/23/2022 m36 kc 10/7/2022 - Average level = 0.549 - Average level = 0.534 - Variation = 0.0326 - Variation = 0.0314 36 Melanin average level Melanin variation 100 % 0.2 -Circular selection: area = 74.8 mm<sup>2</sup> diameter = 9.8 mm

Melanin

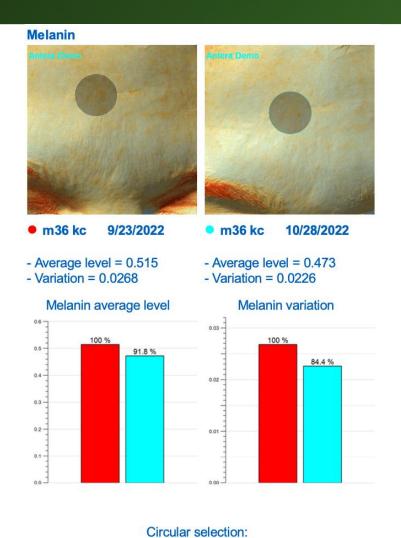




Circular selection: area = 3.3 mm<sup>2</sup> diameter = 2.1 mm

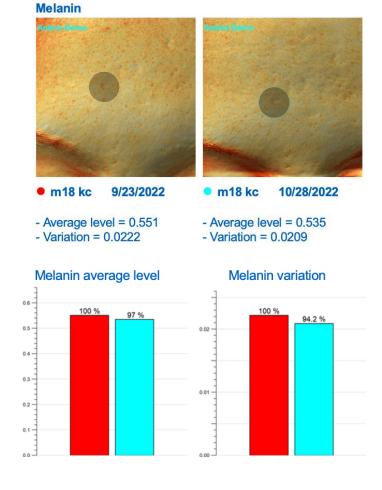


Circular selection: area = 376.3 mm<sup>2</sup> diameter = 21.9 mm

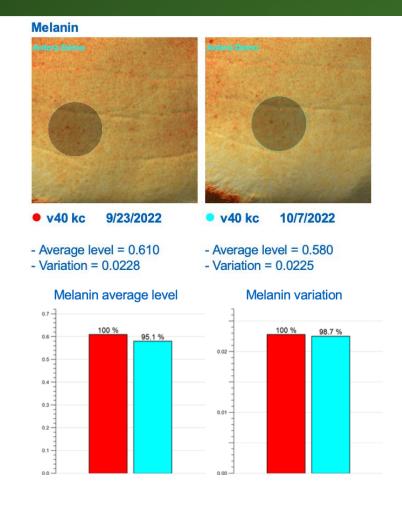


area = 152.8 mm<sup>2</sup>

diameter = 14.0 mm



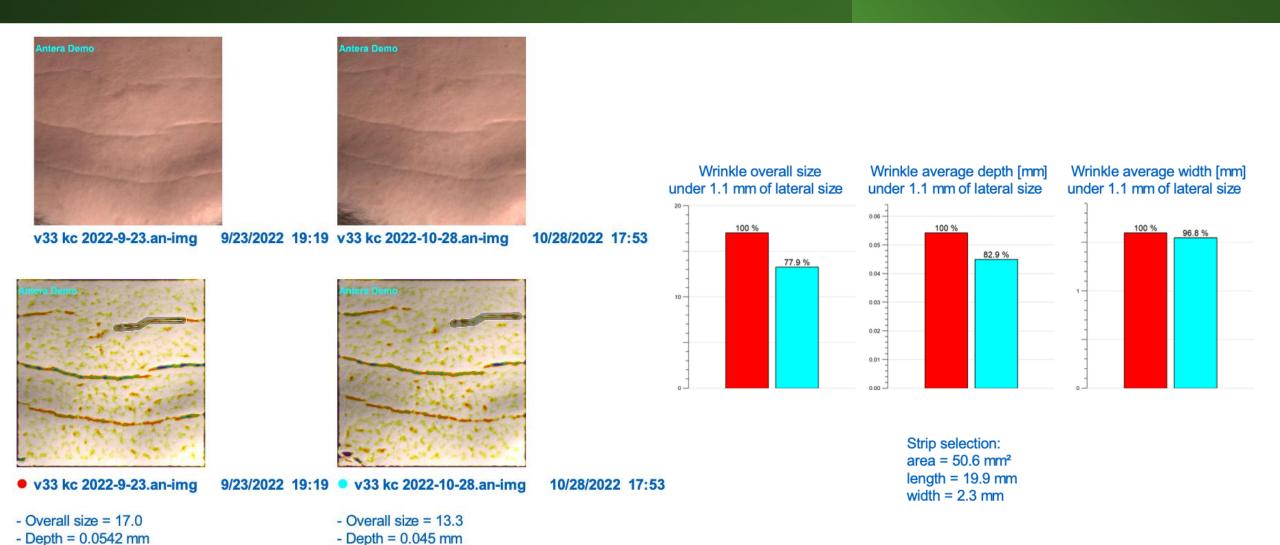
Circular selection: area = 89.7 mm<sup>2</sup> diameter = 10.7 mm

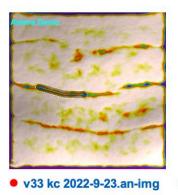


Circular selection: area = 265.7 mm<sup>2</sup> diameter = 18.4 mm

- Width = 1.55 mm

- Width = 1.6 mm

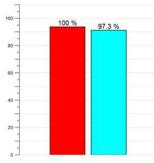






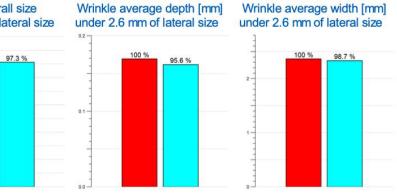
- Overall size = 93.7Depth = 0.169 mm
- Width = 2.37 mm



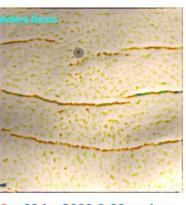


Autoria Demo

- 9/23/2022 19:19 v33 kc 2022-10-28.an-img
  - 33 kc 2022-10-28.an-img 10/28/2022 17:53
  - Overall size = 91.3
  - Depth = 0.162 mm
  - Width = 2.33 mm



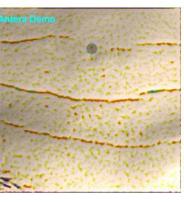
Strip selection: area = 46.6 mm² length = 16.2 mm width = 2.6 mm







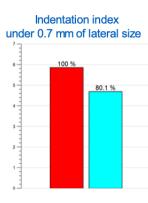




9/23/2022 19:19 v33 kc 2022-10-28.an-img

- Indentation index = 4.692

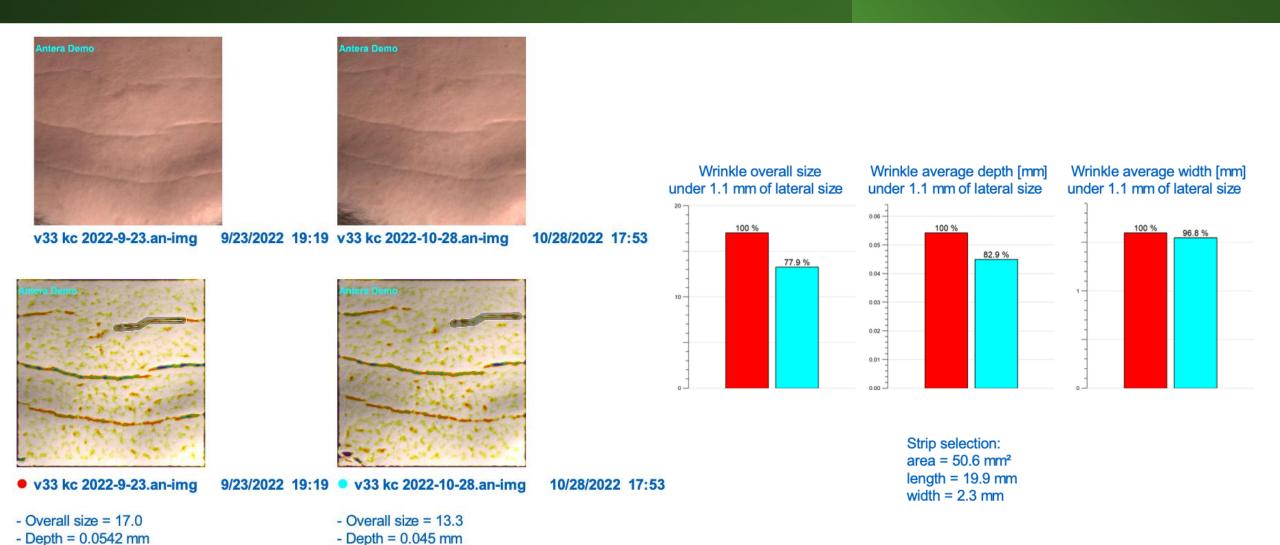
10/28/2022 17:53

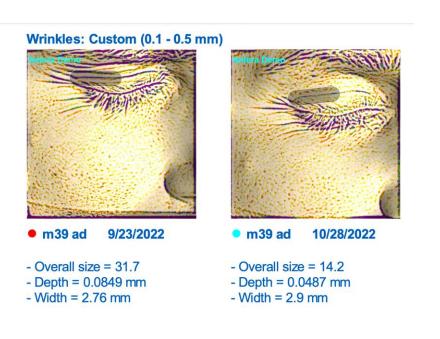


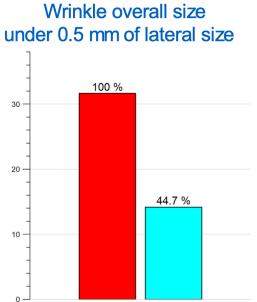
Circular selection: area = 8.1 mm<sup>2</sup> diameter = 3.3 mm

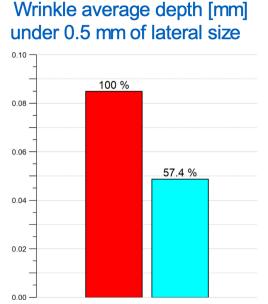
- Width = 1.55 mm

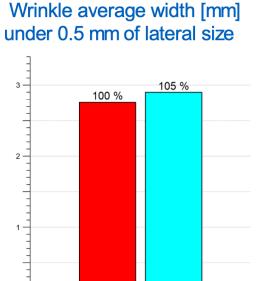
- Width = 1.6 mm



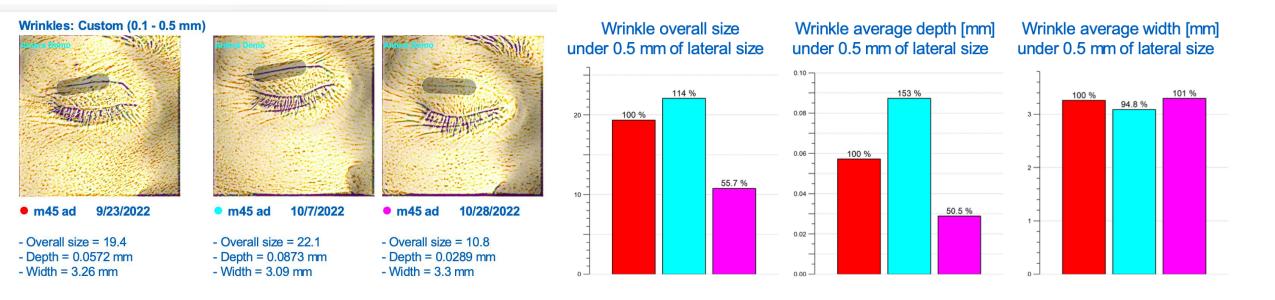




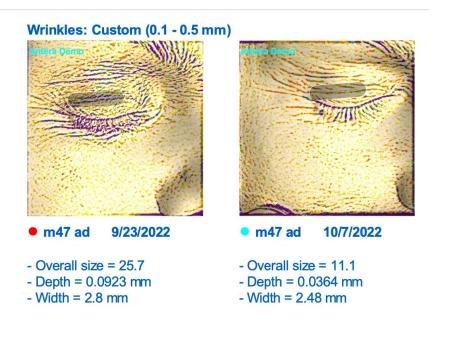


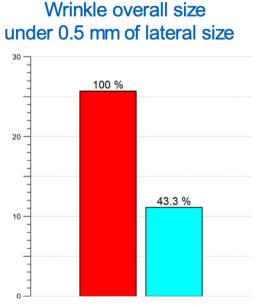


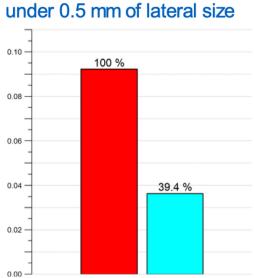
Strip selection: area = 82.9 mm<sup>2</sup> length = 12.1 mm width = 5.1 mm



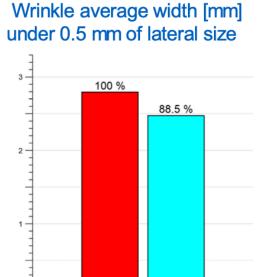
Strip selection: area = 98.1 mm<sup>2</sup> length = 13.1 mm width = 5.6 mm



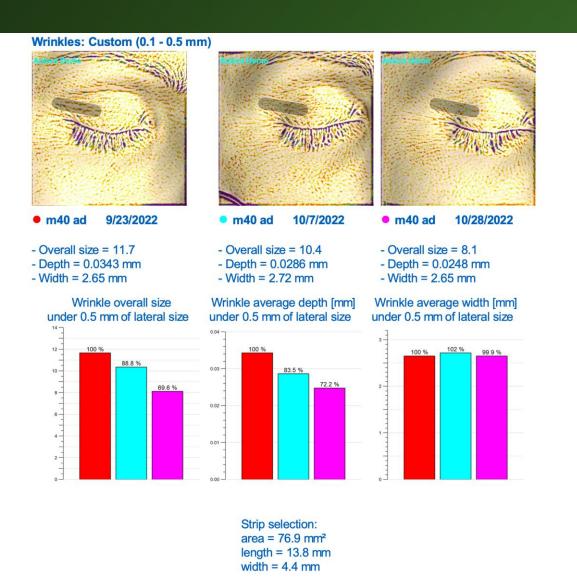


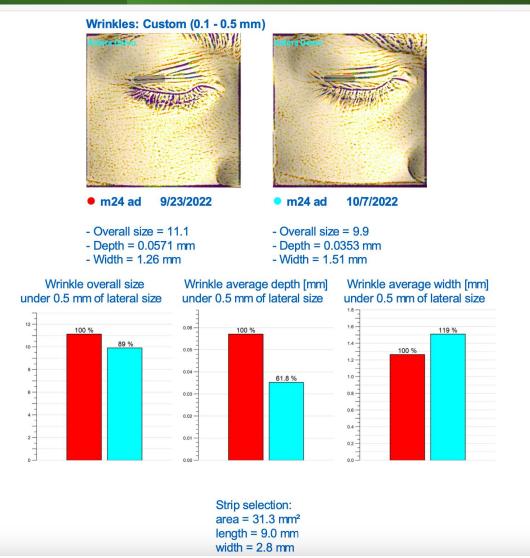


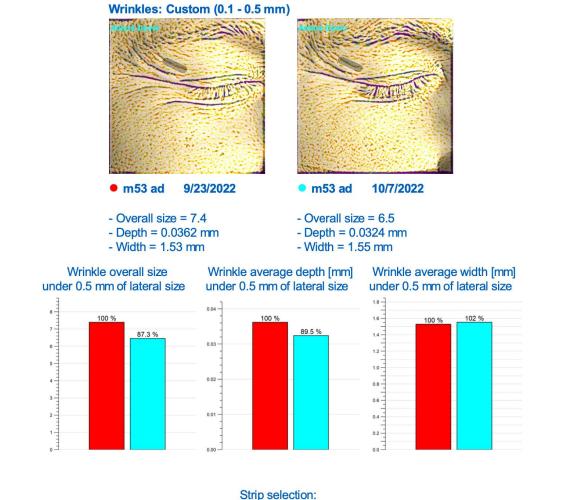
Wrinkle average depth [mm]



Strip selection: area = 79.1 mm<sup>2</sup> length = 13.3 mm width = 4.7 mm



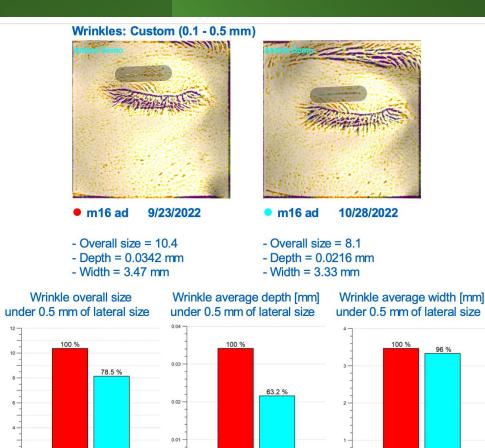




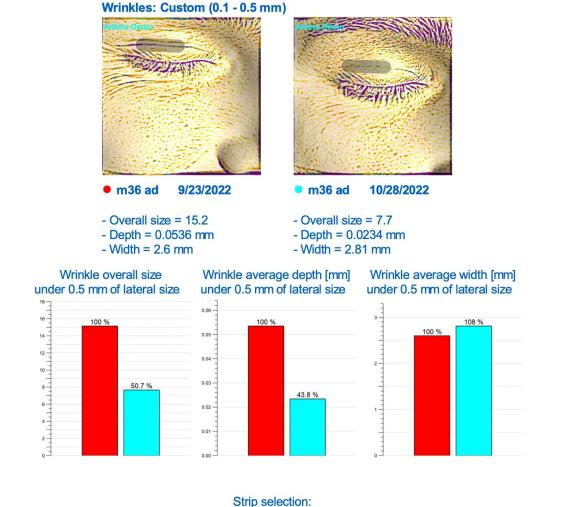
area =  $25.2 \text{ mm}^2$ 

length = 6.8 mm

width =  $2.8 \, \text{mm}$ 

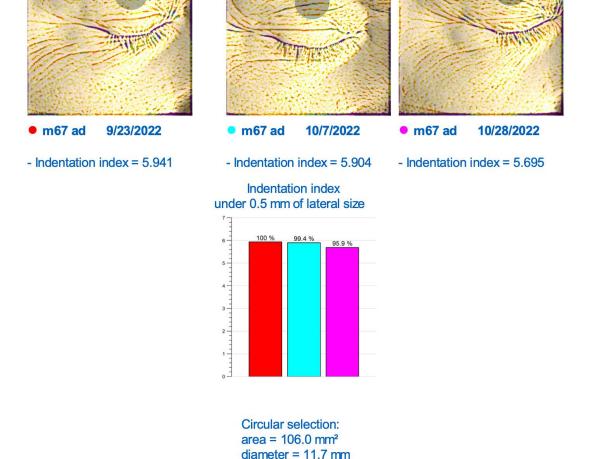


Strip selection: area = 106.8 mm<sup>2</sup> length = 14.7 mm width = 5.6 mm



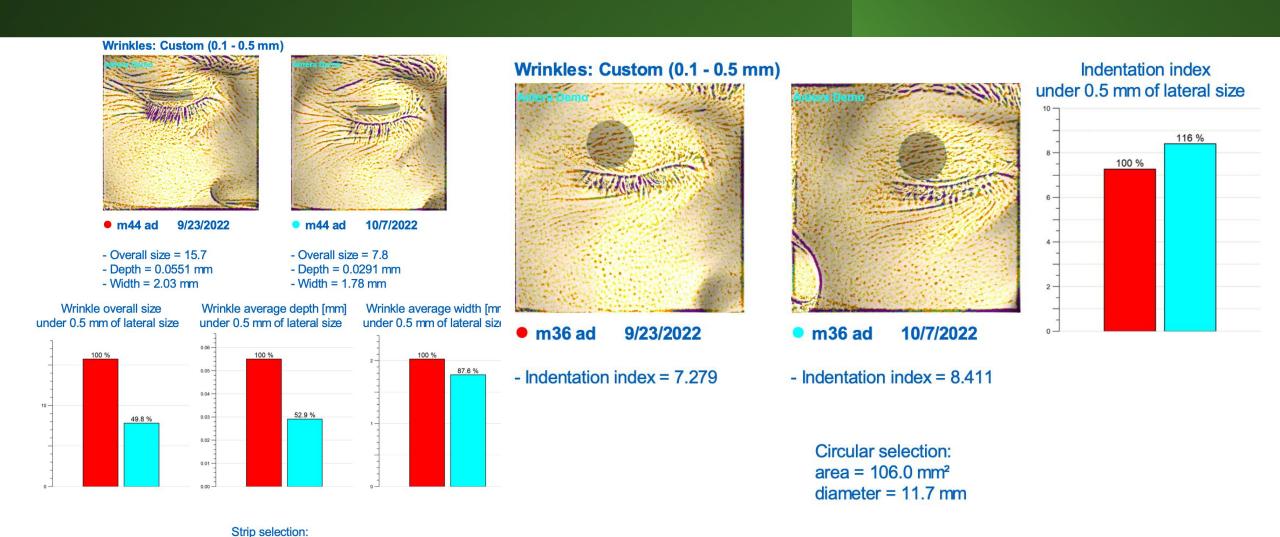
 $area = 76.9 \text{ mm}^2$ 

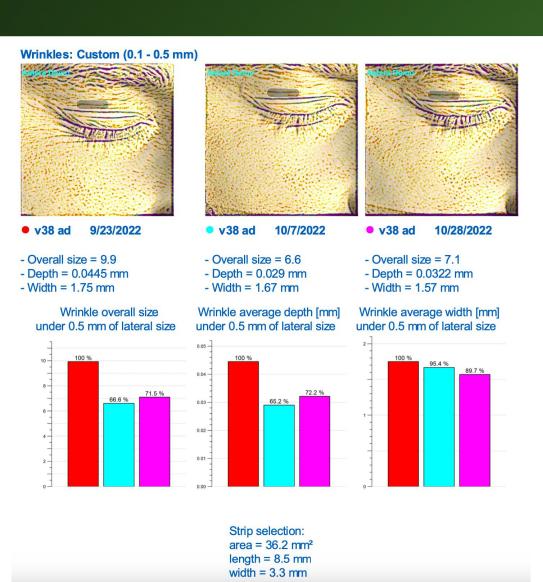
length = 12.8 mm width = 4.7 mm

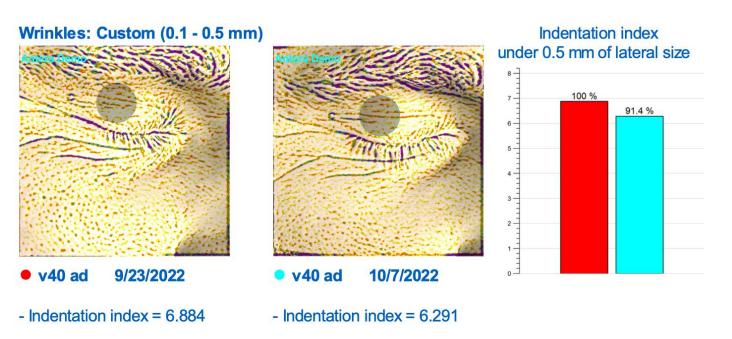


Wrinkles: Custom (0.1 - 0.5 mm)

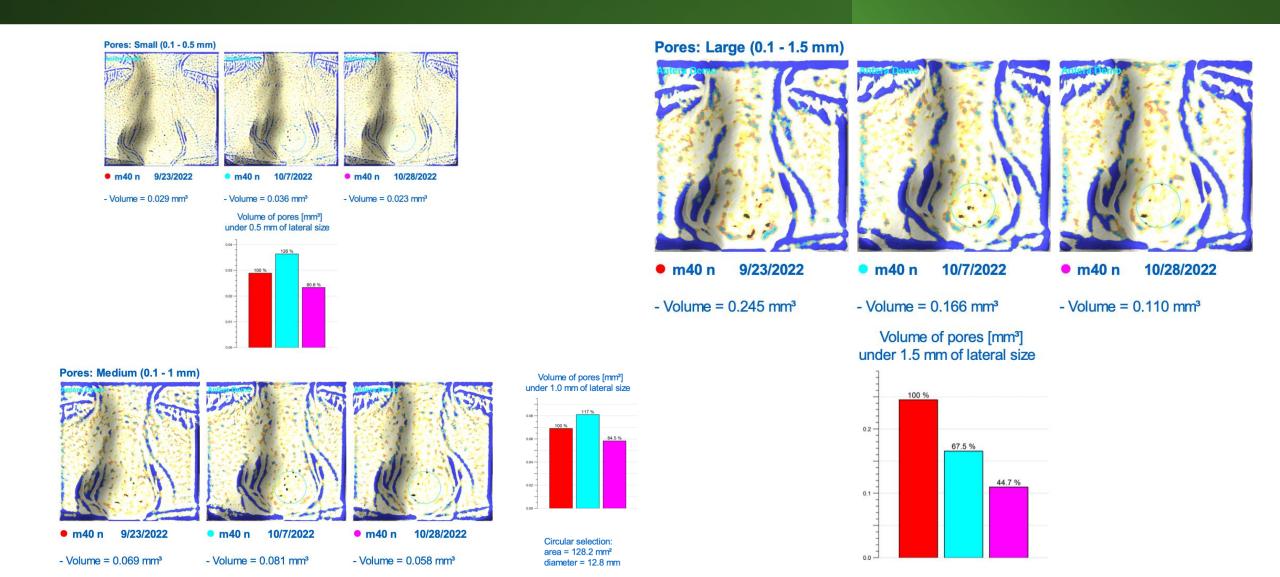
area = 49.7 mm<sup>2</sup> length = 12.7 mm width = 3.3 mm



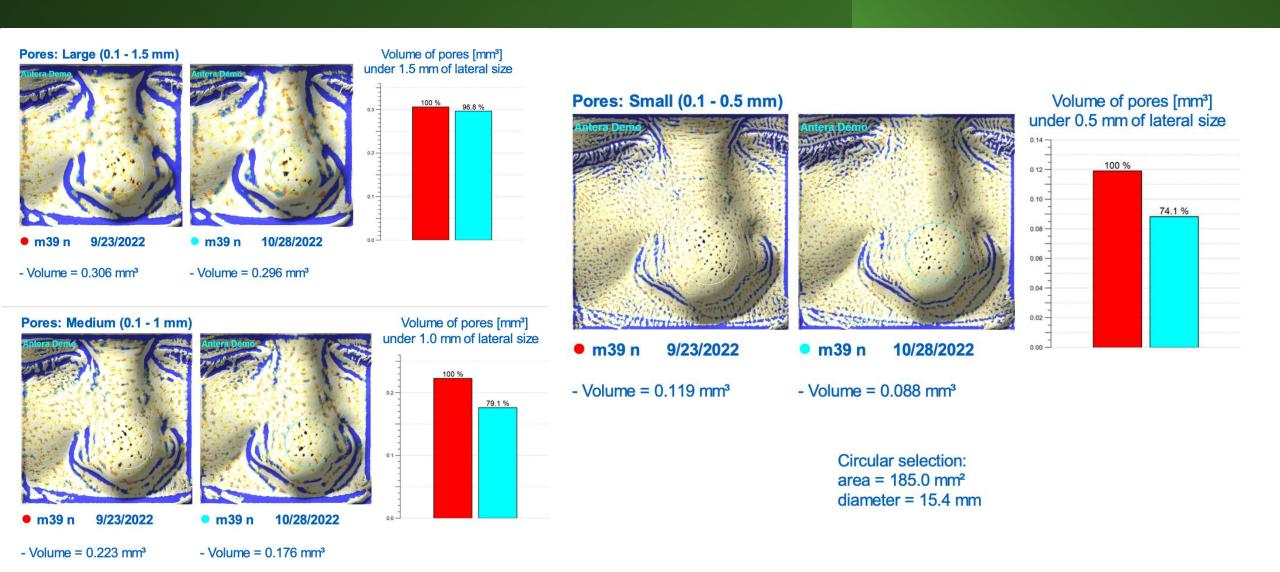


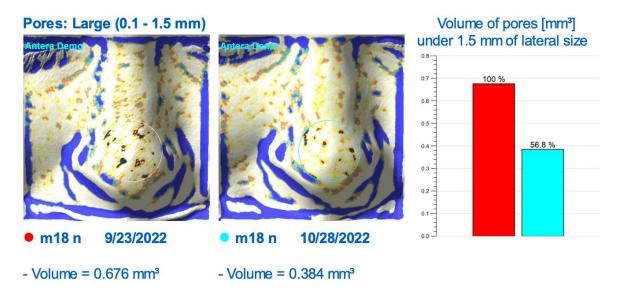


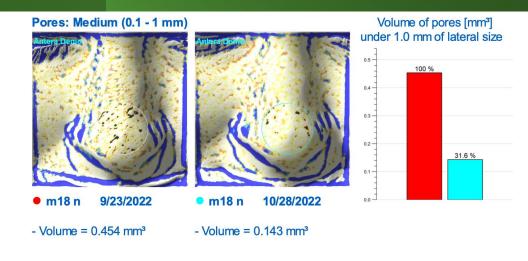
#### Pores average level and variation



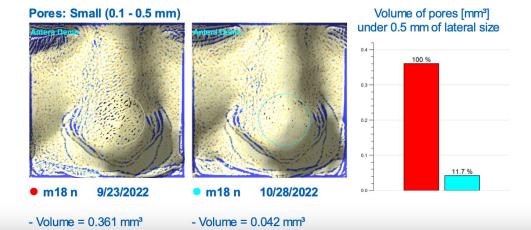
#### Pores average level and variation

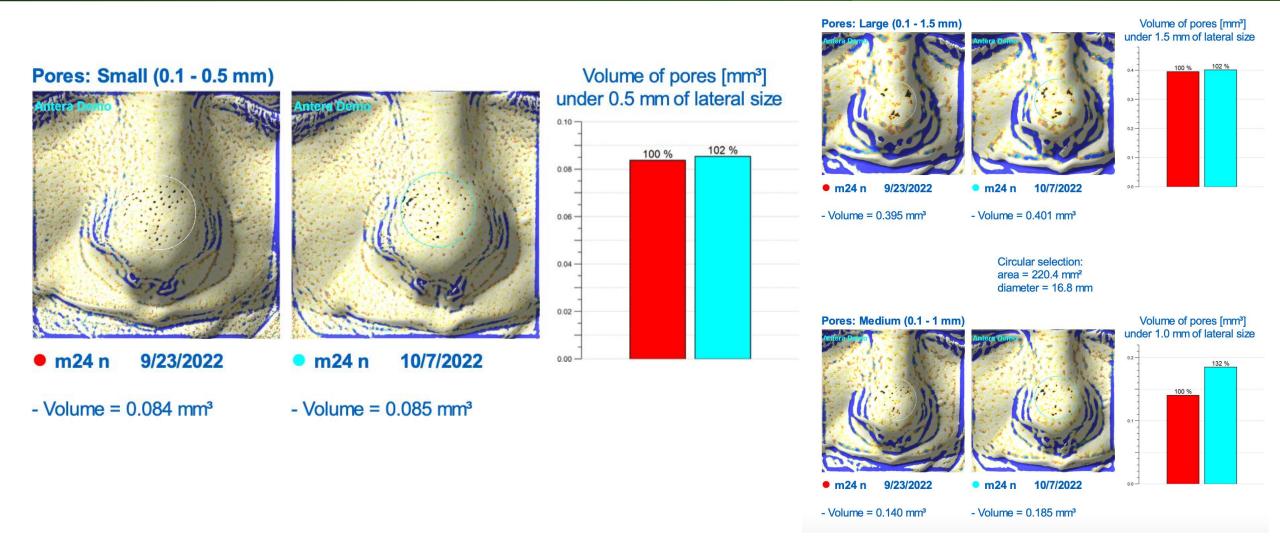


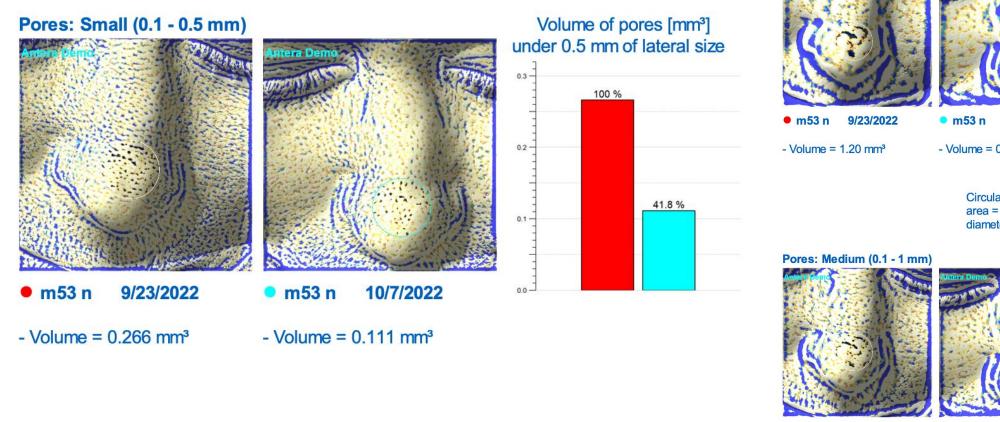


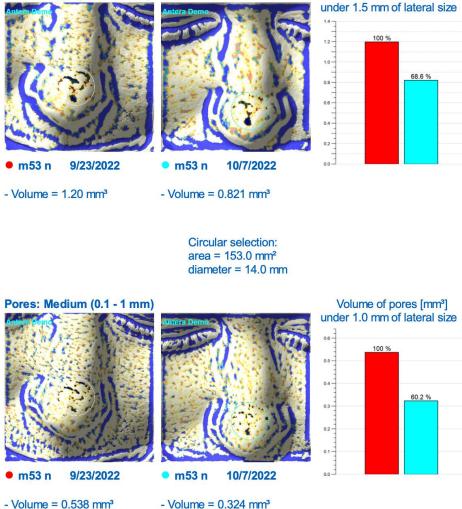


Circular selection: area = 265.7 mm<sup>2</sup> diameter = 18.4 mm



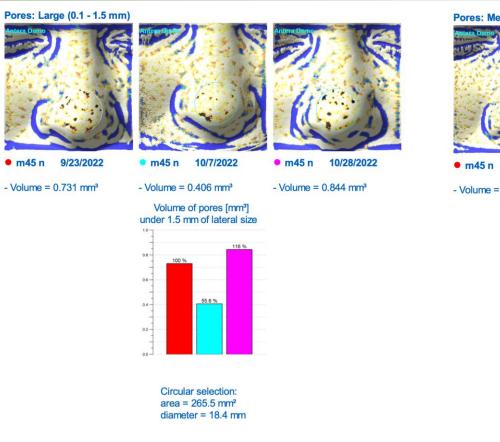


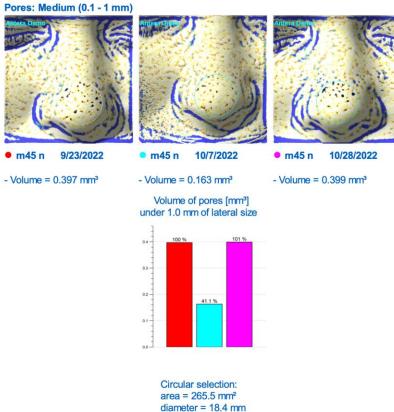


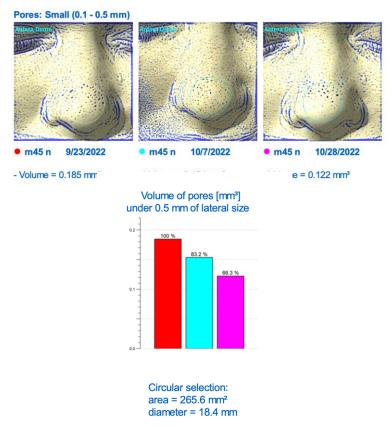


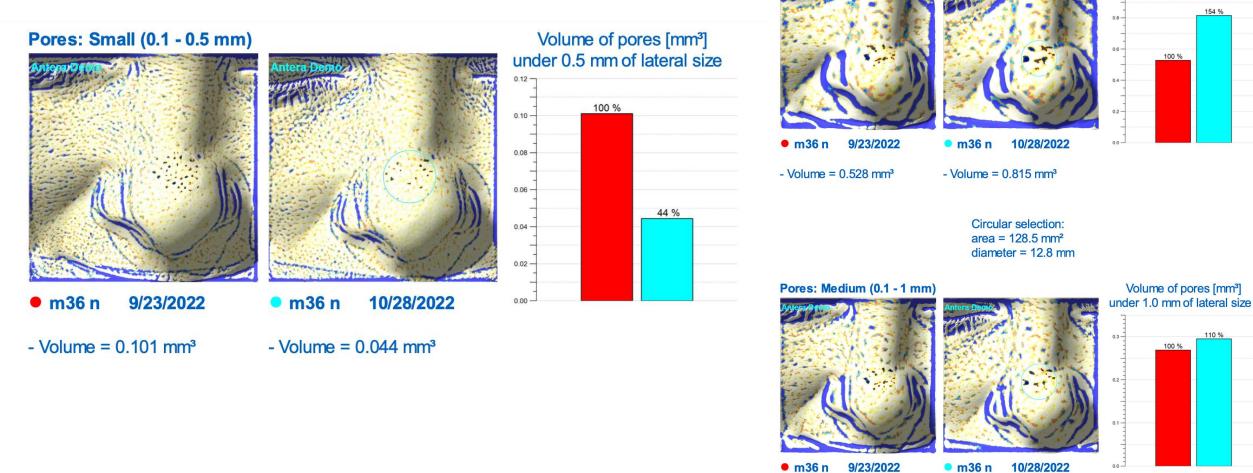
Volume of pores [mm³]

Pores: Large (0.1 - 1.5 mm)







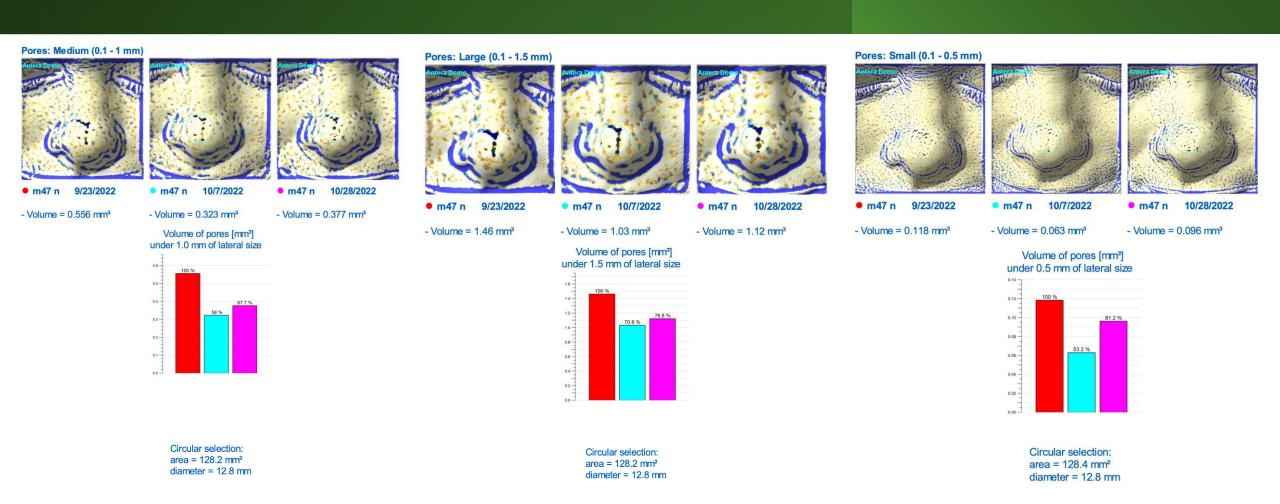


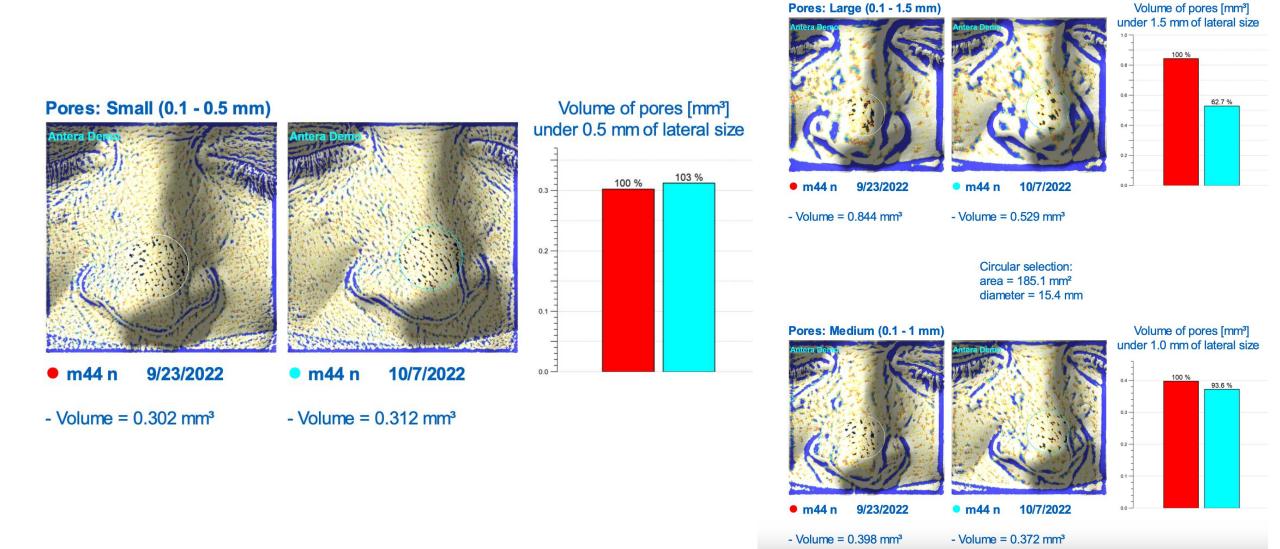
Pores: Large (0.1 - 1.5 mm)

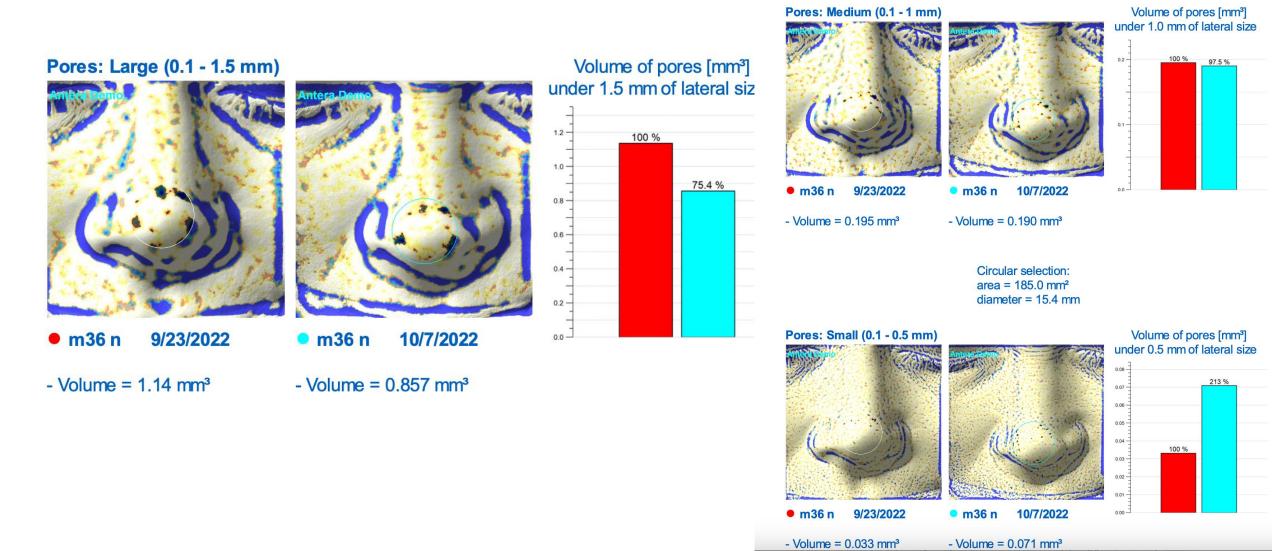
- Volume = 0.269 mm<sup>3</sup>

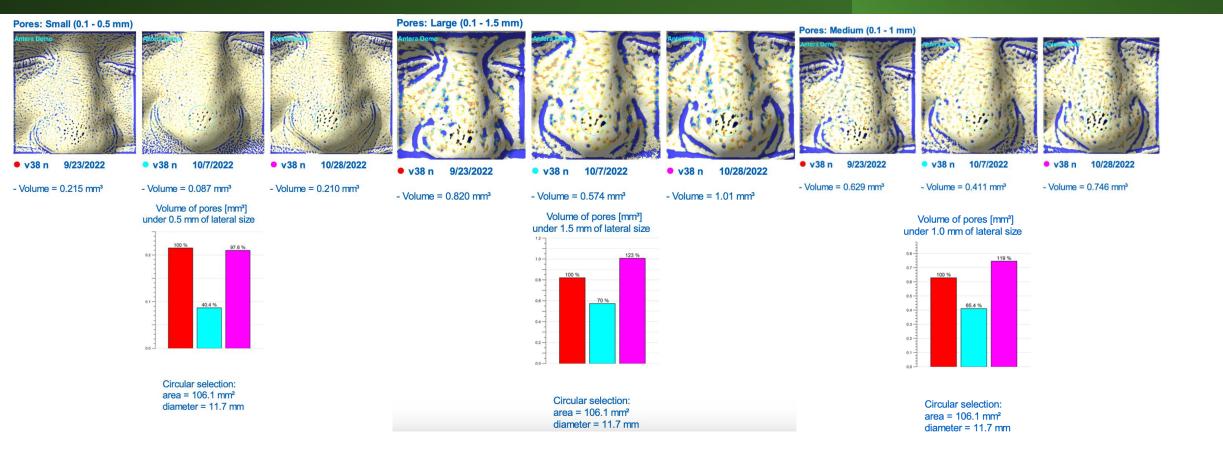
- Volume =  $0.295 \, \text{mm}^3$ 

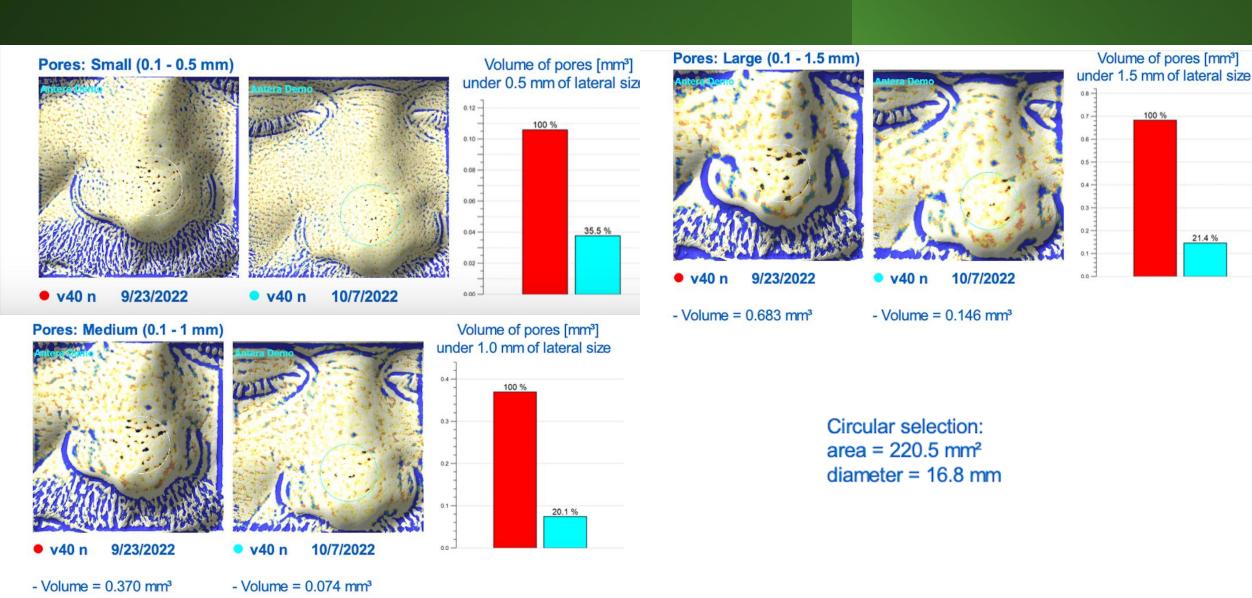
Volume of pores [mm³] under 1.5 mm of lateral size

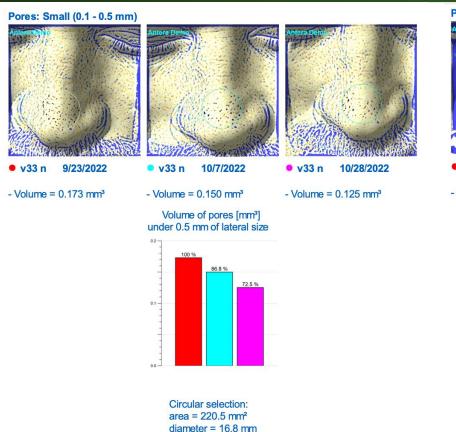


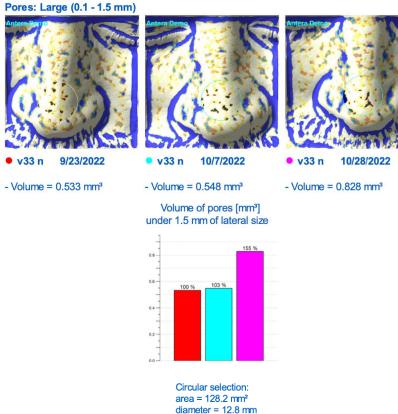


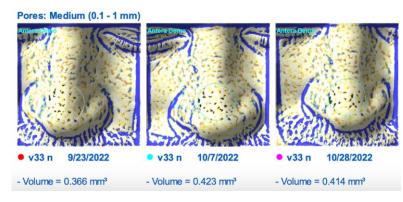


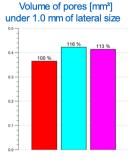




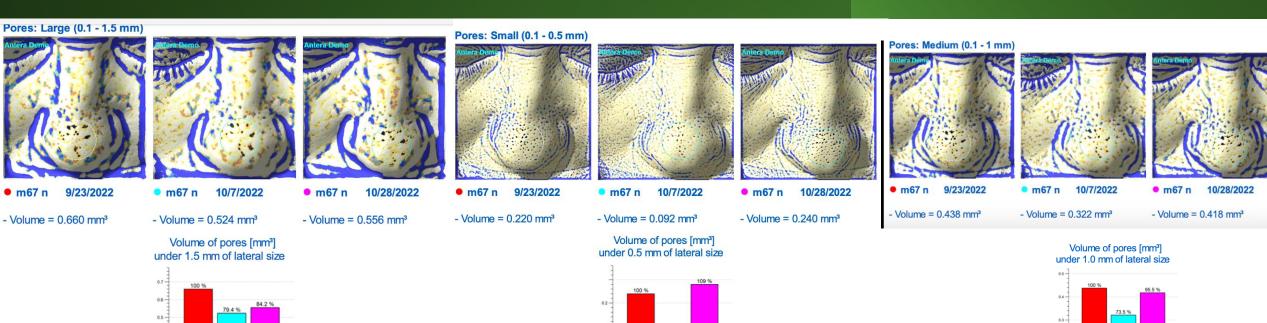




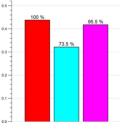




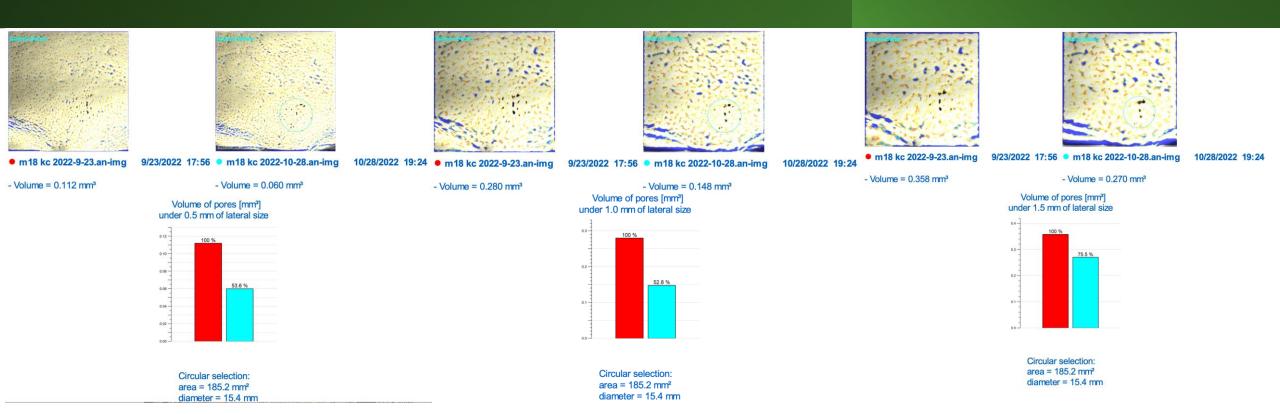
Circular selection: area = 220.5 mm² diameter = 16.8 mm



Circular selection: area = 185.1 mm<sup>2</sup> diameter = 15.4 mm Circular selection: area = 185.1 mm<sup>2</sup> diameter = 15.4 mm



Circular selection: area = 185.1 mm<sup>2</sup> diameter = 15.4 mm



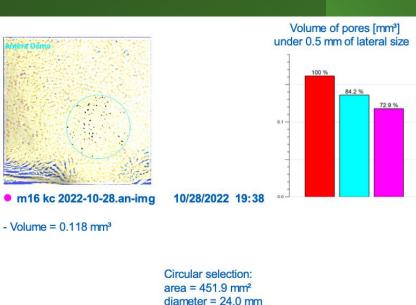


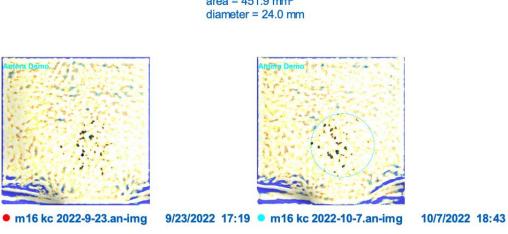
9/23/2022 17:19 m16 kc 2022-10-7.an-img

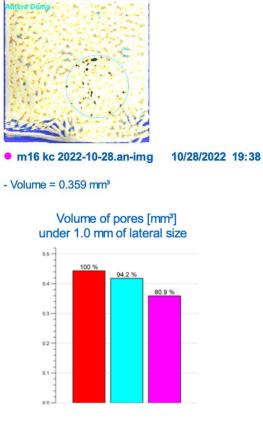
- Volume = 0.136 mm3

m16 kc 2022-9-23.an-img

- Volume = 0.162 mm<sup>3</sup>



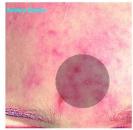




- Volume = 0.443 mm<sup>3</sup>

10/7/2022 18:43

 $- Volume = 0.418 \text{ mm}^3$ 







9/23/2022 17:19 m16 kc 2022-10-7.an-img

10/7/2022 18:43

- Average level = 1.393
- Variation = 0.128

16

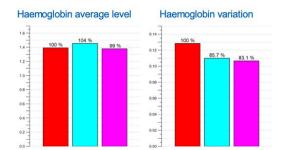
- Average level = 1.455
- Variation = 0.11



m16 kc 2022-10-28.an-img

10/28/2022 19:38

- Average level = 1.379
- Variation = 0.107





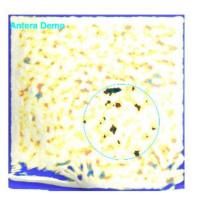
m16 kc 2022-9-23.an-img

9/23/2022 17:19 • m16 kc 2022-10-7.an-img

10/7/2022 18:43

- Volume = 0.761 mm<sup>3</sup> 16

- Volume = 0.801 mm<sup>3</sup>



m16 kc 2022-10-28.an-img

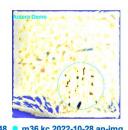
Volume of pores [mm³] under 1.5 mm of lateral size

10/28/2022 19:38

- Volume = 0.907 mm3

10/28/2022 17:35













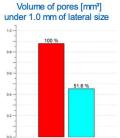
- Volume = 0.713 mm<sup>3</sup>

- Volume = 0.880 mm3

9/23/2022 17:48 m36 kc 2022-10-28.an-img 10/28/2022 17:35 - Volume = 0.454 mm<sup>3</sup>

- Volume = 0.374 mm<sup>3</sup>

9/23/2022 17:48 • m36 kc 2022-10-28.an-img 10/28/2022 17:35



- Volume = 0.146 mm<sup>3</sup> Volume of pores [mm³] under 0.5 mm of lateral size

> Circular selection: area = 451.9 mm<sup>2</sup> diameter = 24.0 mm

Circular selection: area = 451.9 mm<sup>2</sup> diameter = 24.0 mm

under 1.5 mm of lateral size

Circular selection: area = 452.0 mm<sup>2</sup> diameter = 24.0 mm