

# Machine Translated by Google

## Device and analyzer of the contact angle of wetting of mineral surfaces

### Tour Anastasia

#### Problem: The

main losses of diamonds are represented by crystals with a size of -5 mm. This class of diamonds is 15% of the cost of marketable products.

#### Goal:

Create a device and an edge analyzer contact angle of mineral surfaces.

#### Tasks: 1.

Analysis and collection of wetting data minerals. 2.

Selection of components and creation of the device. 3. Creation of software.

Sticky separation



foam separation

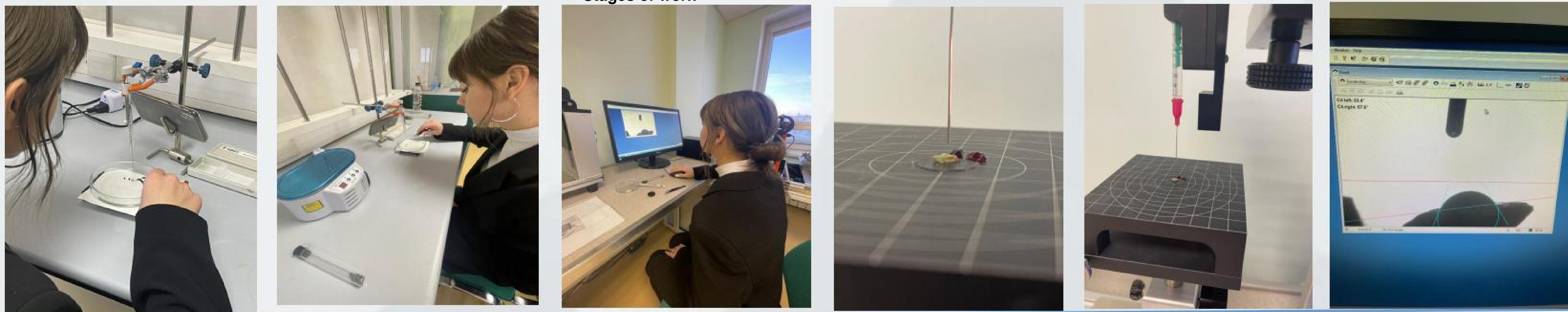


### Data collection

Measuring the contact angle value makes it possible to reveal the hydrophobic-hydrophilic addition properties surface structural and chemical characteristics of their surface. The contact angle is determined by the sessile drop method applied by a microsyringe to the surface of a diamond or a mineral.

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1			
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	<p><math>\theta = 35-40^\circ</math> (полное смачивание, поверхность равномерно покрыта макро и микро образованиями, минеральной пленкой)</p>	<p><math>\theta = 40-60^\circ</math> (гидрофильная поверхность, имеются чистые области, основное скопление тонкодисперсных минералов во впадинах)</p>	<p><math>\theta &gt; 70-90^\circ</math> (чистая поверхность, тонкодисперсные минеральные присыпки в ростовых углублениях)</p>

#### Stages of work



#### About the product

"Device + video support" system for measuring the contact angle of wetting and analyzing the contour of a drop. The contact angle was determined by the method of sitting microsyringe on the area of the diamond or mineral surface. The value of the contact angle of a certain wetting was calculated as the average of at least 3 values differing by no more than 5%. The received data is processed by

analysis  
contour  
drops

Device: consists of a microsyringe, a substrate for a mineral and a camera.

No.	Name	Cost, rub.
1	Tripod with lock Camera	2500
2	Microsyringe	3500
3		5000
	Total:	11000

The cost of 1 analyzer device is 11,000 rubles.

The cost of a foreign (German) analogue is 2,000,000 rubles.



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