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# Technical analysis of counterfeit euro coins



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## basic analysis

### visual check:

- image quality
- defects (dot, lines, mint mark, ect.)
- side alignment
- edge analysis (milling and lettering)



### magnetic test





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image quality  
*lack of definition*



Counterfeit

Genuine





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image quality  
*orange peel effect*



Genuine



Counterfeit



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image quality  
*different engraved design*





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image quality  
*different colour*

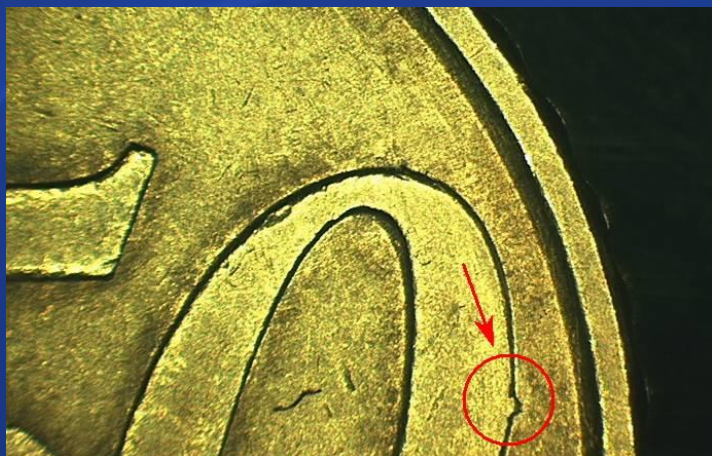




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defects  
*positive (raised) dots*





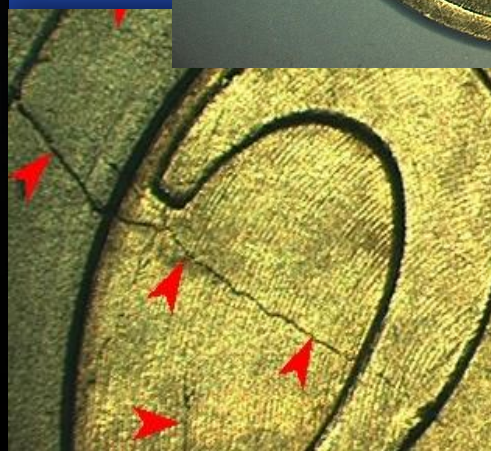
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defects  
*turning circles , cracks*





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## Genuine



## Counterfeit



(615...)





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**Some counterfeit coins are not correctly aligned when rotated on the vertical axis**



Check of the coin edge mainly focus on this aspects:

- Different milling shape
- Different design, letter types, spelling mistakes (2 euro edge lettering)



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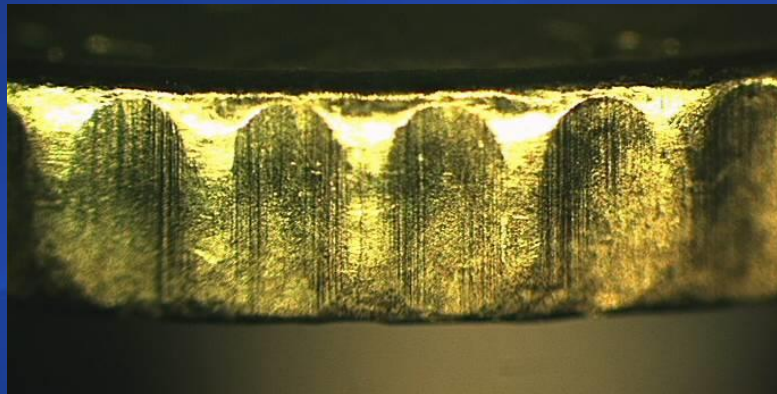


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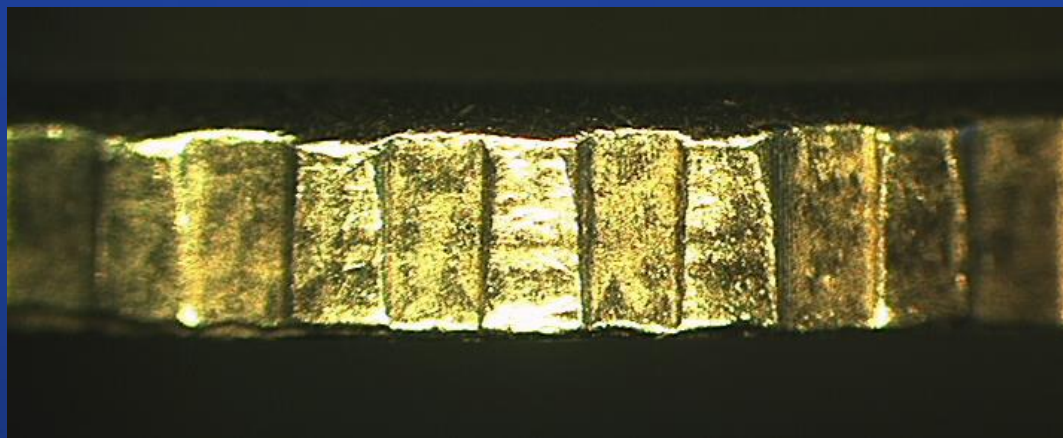


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**Genuine**



**Counterfeit**





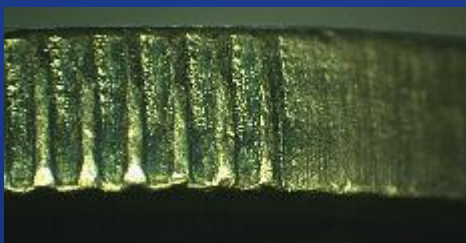
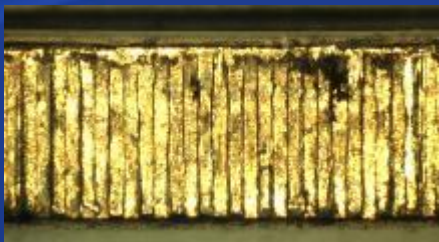
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**Genuine**



**Counterfeit**

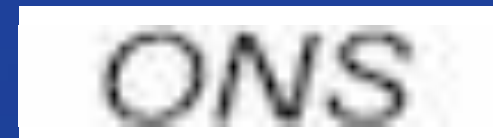




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- Different letter type in Dutch edge:



- Different style for « 2 » and stars



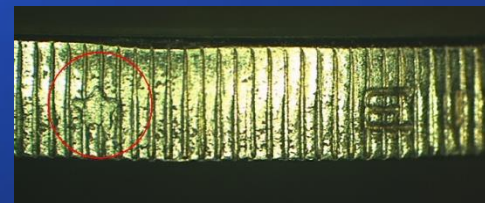
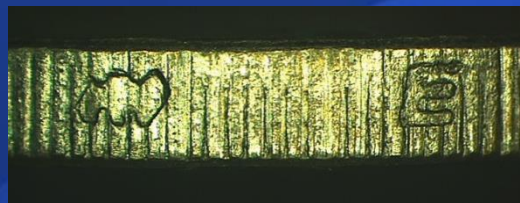
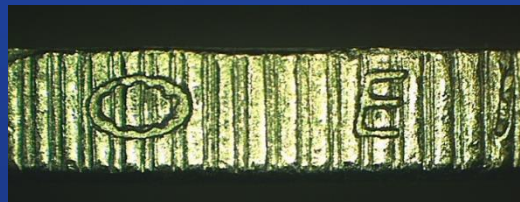


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## Counterfeit



## Genuine





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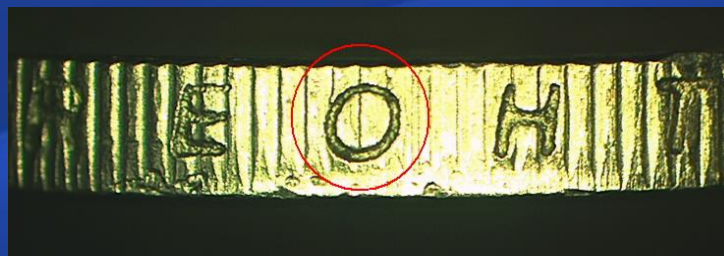
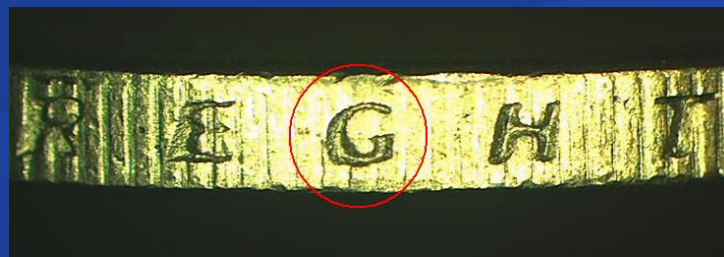
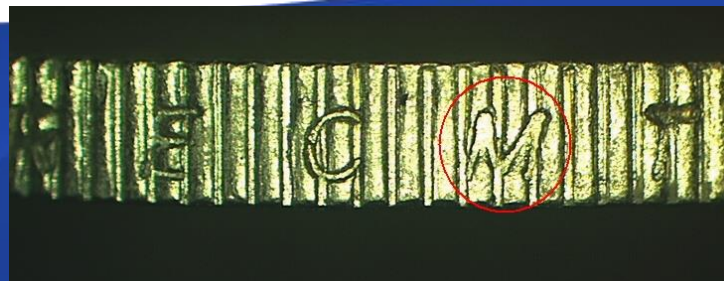
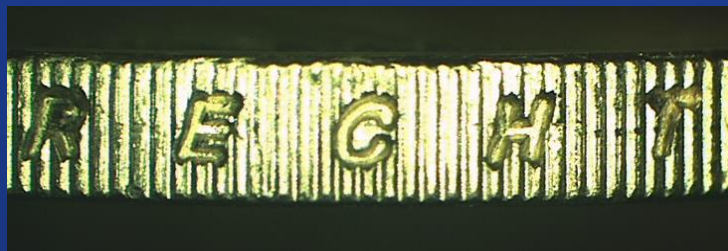
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- Spelling mistakes
- Different letter types

Counterfeit

Genuine





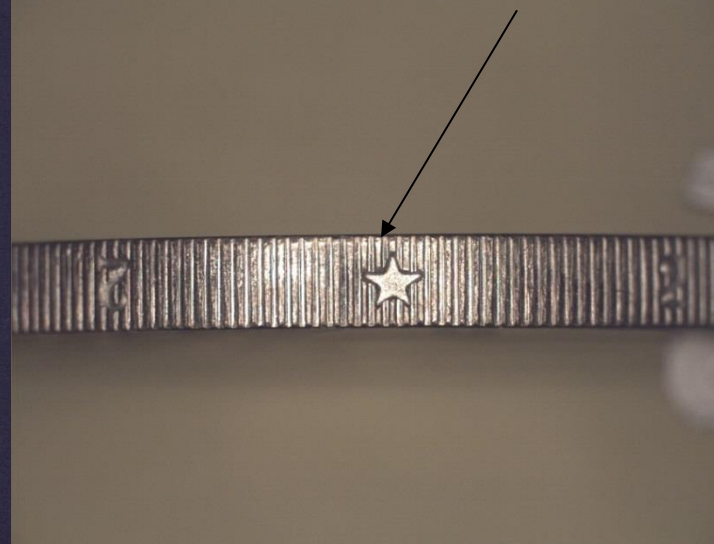
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# 2 euro counterfeit coin

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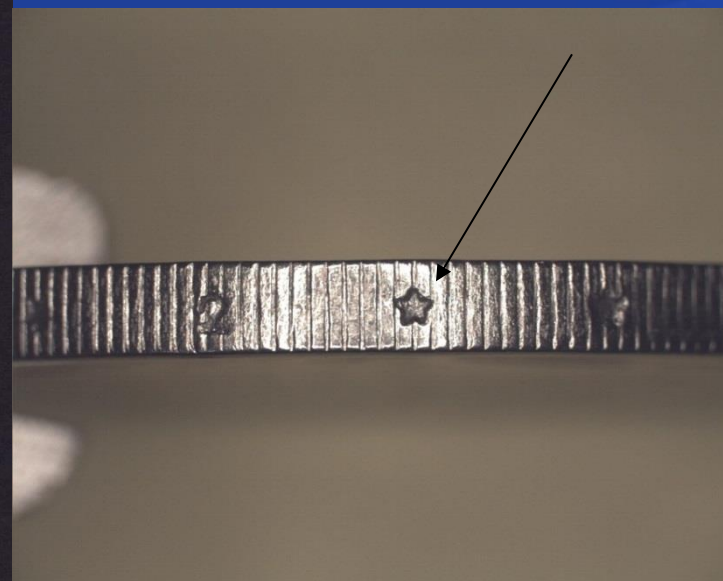
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**genuine 1 and 2 euro are slightly  
magnetic in the inner part**



**many counterfeits are non-magnetic or strongly magnetic  
some counterfeits have imitated slight magnetism, but with differences**





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thin steel layer



*Spot welding*





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detailed visual analysis

measurements of :

weight

diameter

thickness

conductivity

magnetic moment

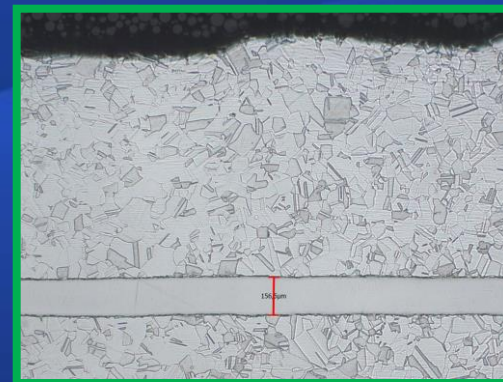
b) destructive tests

push-out force

chemical analysis

(ICP/OES/XRF)

metallography





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# Unfit coins, medals and tokens, foreign coins





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Genuine Deliberately  
altered coins



Genuine Unfit coins





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## Authentication and activity of the CNAC



## Authentication of euro circulating coins

*Process of verifying that euro coins are authentic and fit for circulation*

institution involved in recycling of euro coins have to:

- Check the coins before putting them back into circulation
- Withdraw from circulation suspect and unfit coins
- Send suspect counterfeit/unfit coins to the CNAC
- Follow specific procedure in order to grant both the correct manual and automatic process to check the coin before re issuing



- **Analysis and classification of counterfeit euro coins**
- **Delivery of new types of counterfeit coins to the ETSC (European Technical Scientific Centre)** activities of the CNAC
- **To inform those who have sent the coins (i.e. banks, CIT companies, law enforcement)**
- **Data entry into the database Counterfeit Monitoring System**
- **Consignment of counterfeit coins and report to the authorities (administrative seizures)**
- **Technical support during police operations in the dismantlement of illegal mints**
- **Statistics**
- **Training**





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## Additional new tasks according to Reg. 1210/2010

### Designated National Authority (C.N.A.C.)



**detection capability of  
coin processing machines**

:

**“DETECTION TEST”**



**Annual on-the-spot  
controls**

(check of the capacity of  
the institutions to  
authenticate euro coins )



**training for manual  
authentication**

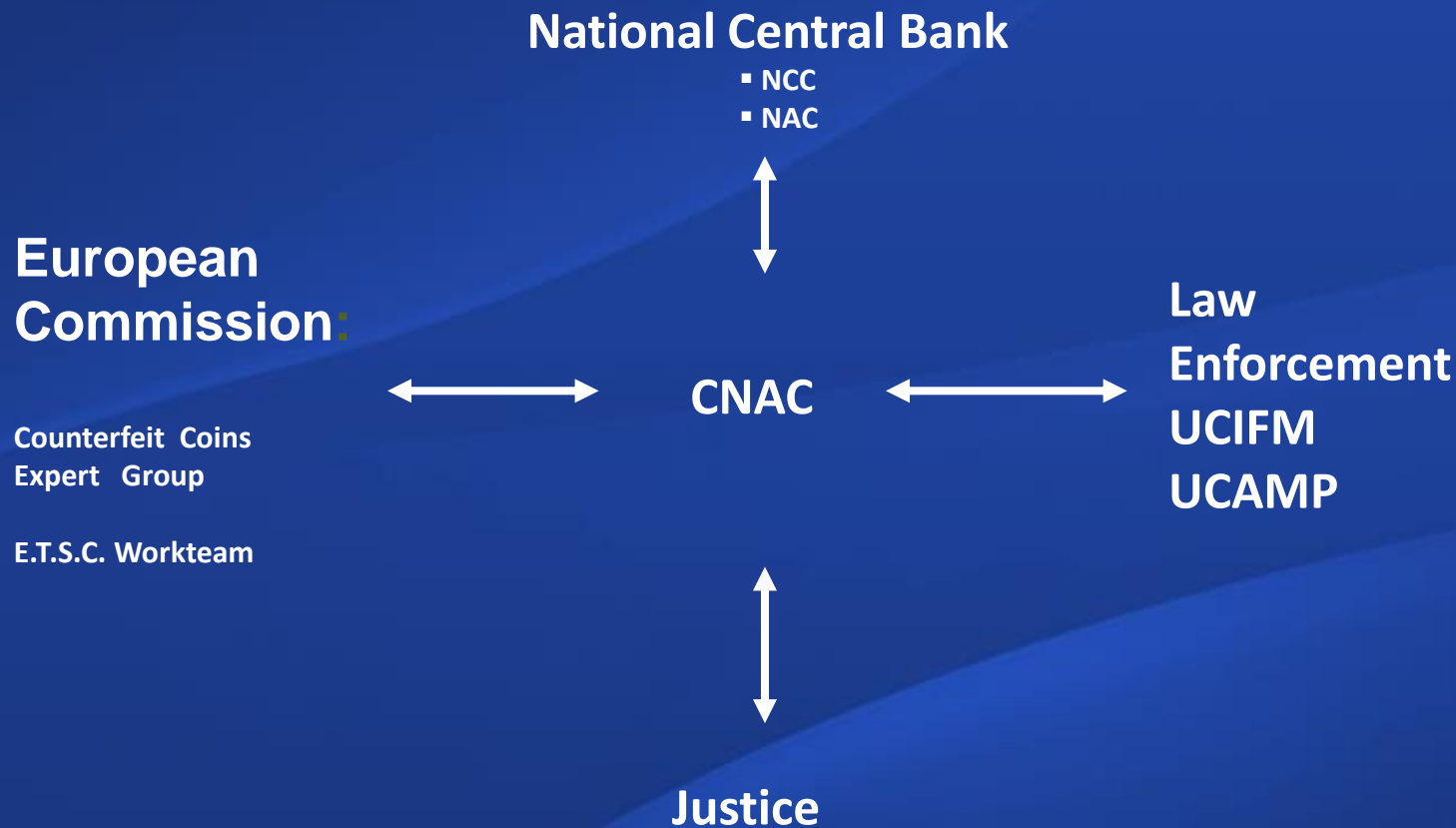


**check of “unfit  
coins”**





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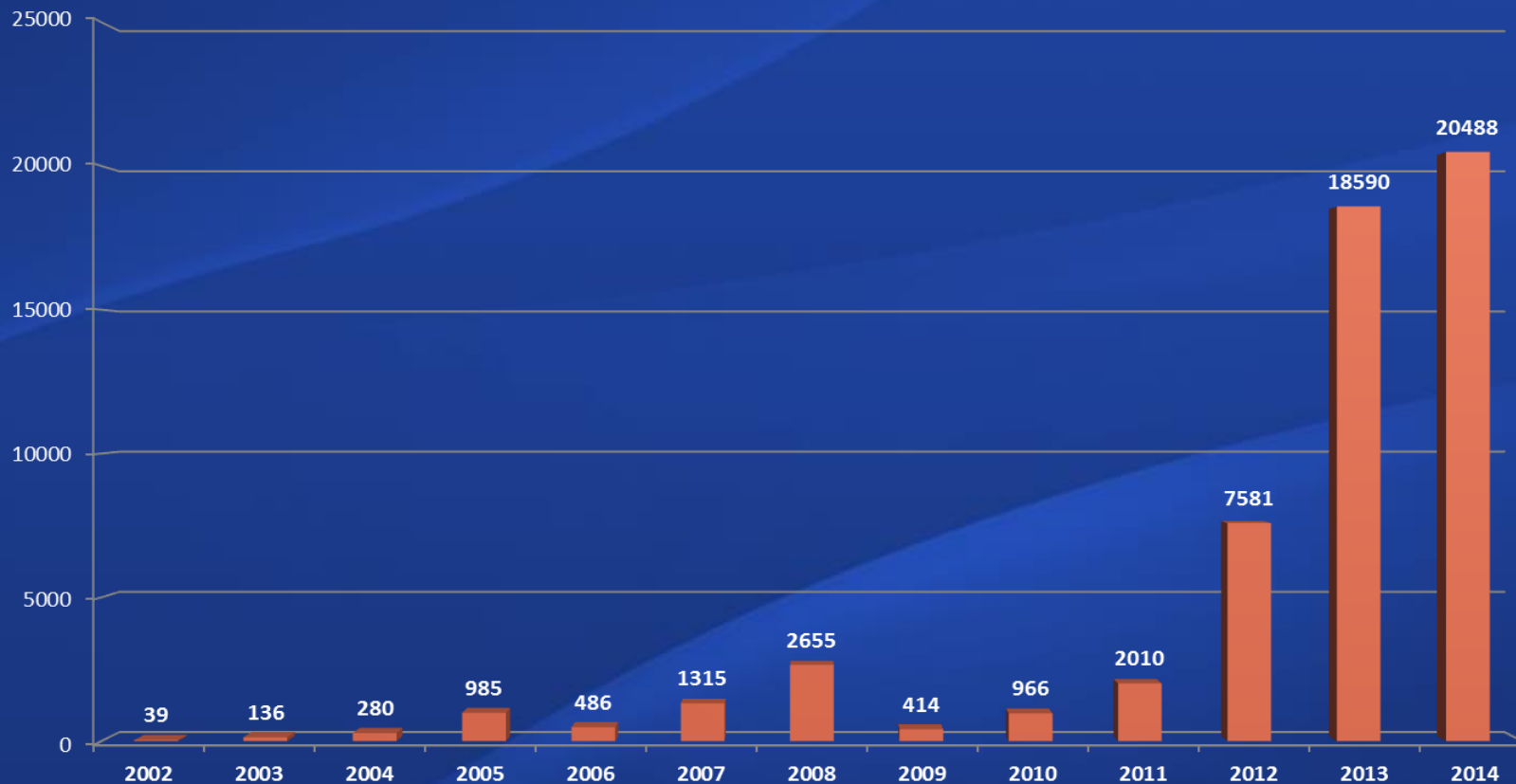
Technical report (on request) concerning  
dismantled illegal mints or specific coins/tools seized





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## Amount of received seizures

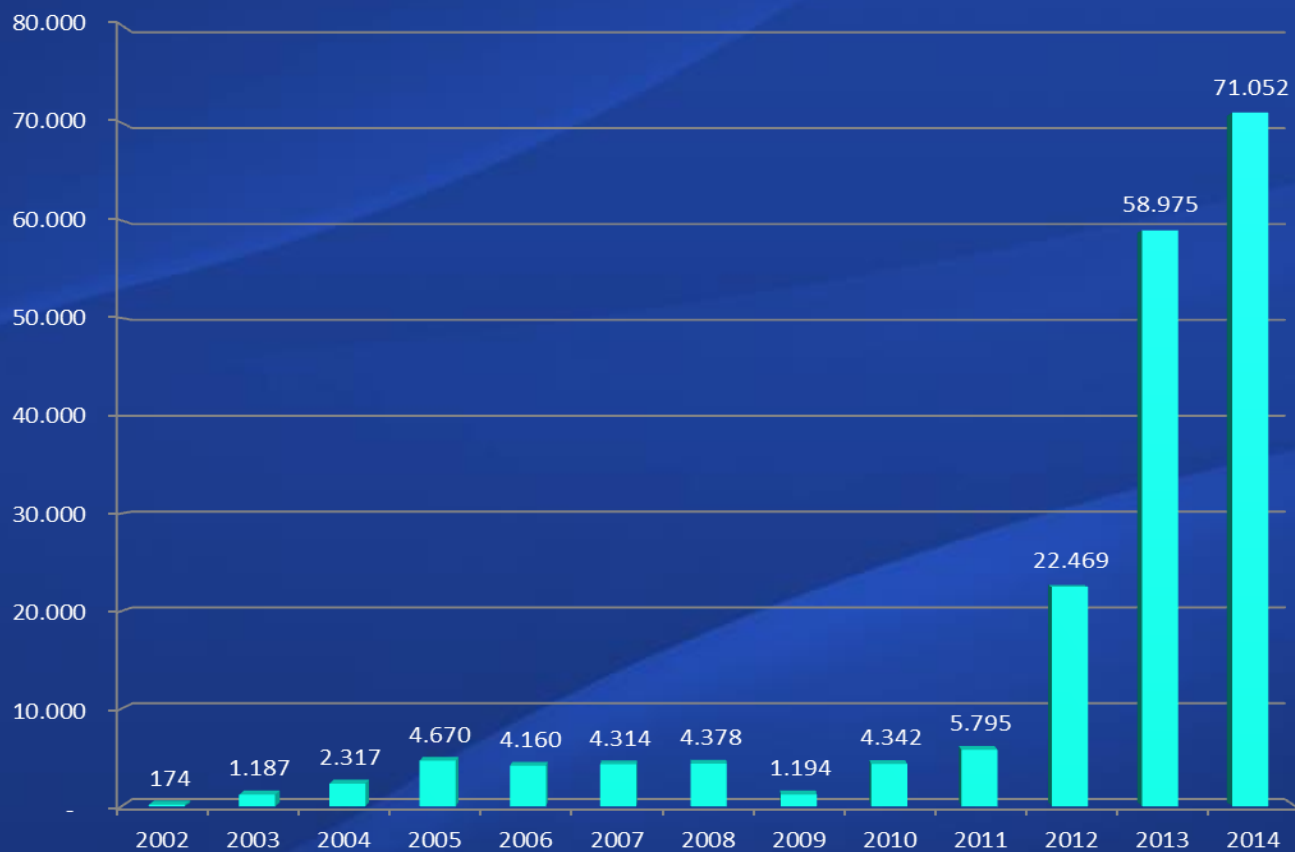




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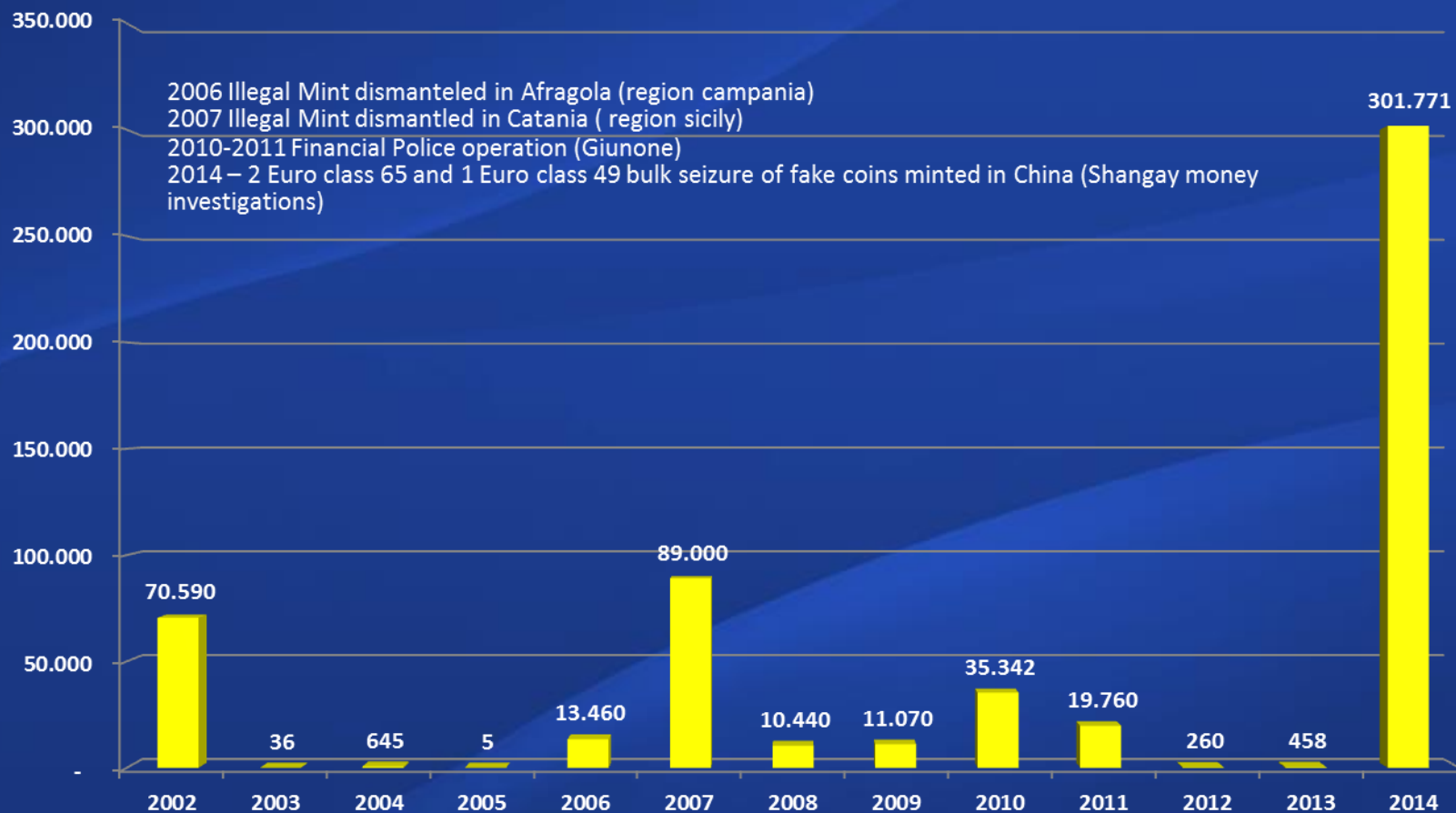
## Number of suspect coins withdrawn from circulation





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## Number of coins detected before circulation





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Thank you for the attention



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SOCIETÀ PER AZIONI CON UNICO SOCIO - CAPITALE SOCIALE € 340.000.000 I.V.

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