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ANGLE

Advanced Quantitative Gamma-Spectrometry Software

for rapid and accurate assessment of food, feed, drinking water and other products during nuclear and radiological emergency

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ANGLE 3

SEMICONDUCTOR DETECTOR EFFICIENCY CALCULATIONS SOFTWARE

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Advanced Quantitative Gamma-Spectrometry

- **ANGLE is an advanced software for quantitative gamma-spectrometry**
- **ANGLE allows for accurate determination of the activities of gamma-spectroscopic samples for which no "replicate" standard exists, in terms of geometry and matrix.**
- **Semi-empirical "efficiency transfer" (ET) approach is used, based on the effective solid angle (Ω) calculations.**
- **ANGLE combines advantages of both absolute (Monte Carlo) and relative (calibrated-source-based) methods - minimizing potential for systematic errors in the former and reducing practical limitations of the latter.**
- **ANGLE is a result of more than 20 years of *development*, *practical experience* in numerous gamma-spectrometry laboratories worldwide and constructive *users' feedback*.**

Some prominent ANGLE users

ANGLE 3

File | Detector | Container | Geometry | Source | Other | Calculations | Help

New geometry | Edit geometry | Geometry info | Modify | Delete geometry | Delete

Detector

- Detector example #1
- Detector example #2
- Detector example #3
- Detector example #4
- Detector example #5
- Detector example #6

Geometry

No holder

Geometry example #1

Container

No container

Container example #1
contaminated soil quasi-infinite cylinder

Container example #2

Source

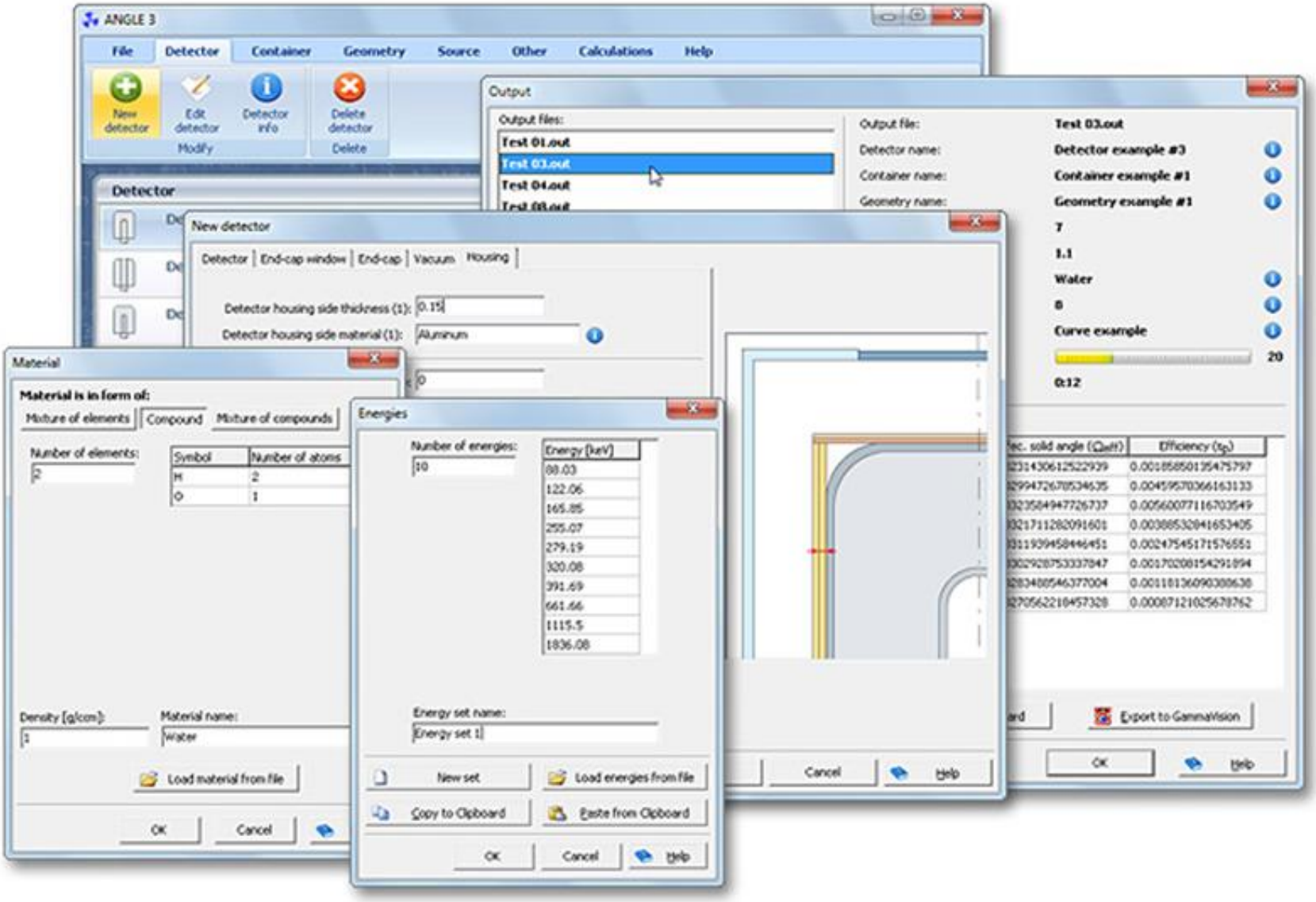
Source height:	100
Source radius:	100
Source material:	Plastic

Other

Energies:	None
Reference efficiency curve:	Curve example
Calculation precision:	28
All dimensions are in:	Centimeters

start | Microsoft PowerPoint ... | Angle | EN | 5:00 PM

… in operation



ANGLE can be used in most of counting arrangements in gamma-spectrometry practice in respect to:

- detector types and configuration
- source shapes and volumes
- matrix composition
- source-to-detector distance
- calibration source
- gamma energy range of interest, etc.

ANGLE is broadly applicable in:

- environmental monitoring
- food safety
- nuclear industry
- waste management
- fuel cycle
- regulatory control
- laboratory quality management
- medicine
- health physics and radiation protection
- radiological/nuclear emergencies
- nuclear safety
- nuclear security
- safeguards
- research
- education and training

Outline

- Broad application range
- Modular applicability
- High accuracy (usually 5-10%)
- Easy data manipulation
- Friendly and intuitive graphical user interface
- Short computation times
- Possibility to handle thousands of calculations/samples in a matter of hours
- Flexibility in respect with changing input parameters
- No need for "factory characterization" of the detector
- Can be used with any HPGE or NaI detector

Conclusion

- ANGLE should be installed and verified in the emergency preparedness phase
- Analytical methods based on ANGLE should be accredited
- Intercomparisons of analytical performance is recommended
- With so done, ANGLE enables rapid determination of radioactivity levels in all kind of samples, including food, drinking water, animal feed, air samples, consumables, etc.
- Number of sample can be huge in short times, depending how work is organized


Thank you!
angle.dlabac.com
Montenegro
a great heart of the Mediterranean