

RADIOACTIVITY IN DRINKING WATER

ALS Czech Republic determines gross alpha and gross beta activities, tritium, as well as other radionuclides in water intended for human consumption. All tests are accredited according to EN ISO/IEC 17025.

RIGHT INSTRUMENTATION

- Scintillation emanometers (Lucas cells)
- Low level alpha/beta activity analyzers
- Liquid scintillation counters
- Scintillation analyzers
- NaI(Tl) gamma spectrometers
- High resolution gamma spectrometers
- ICP/SFMS (activity of long-lived radionuclides)

TYPE OF CONCERNED WATER

- Natural water reserves
- Distributed water
- Natural water springs
- Water used in agri-food industry
- All waters with low content of suspended solids

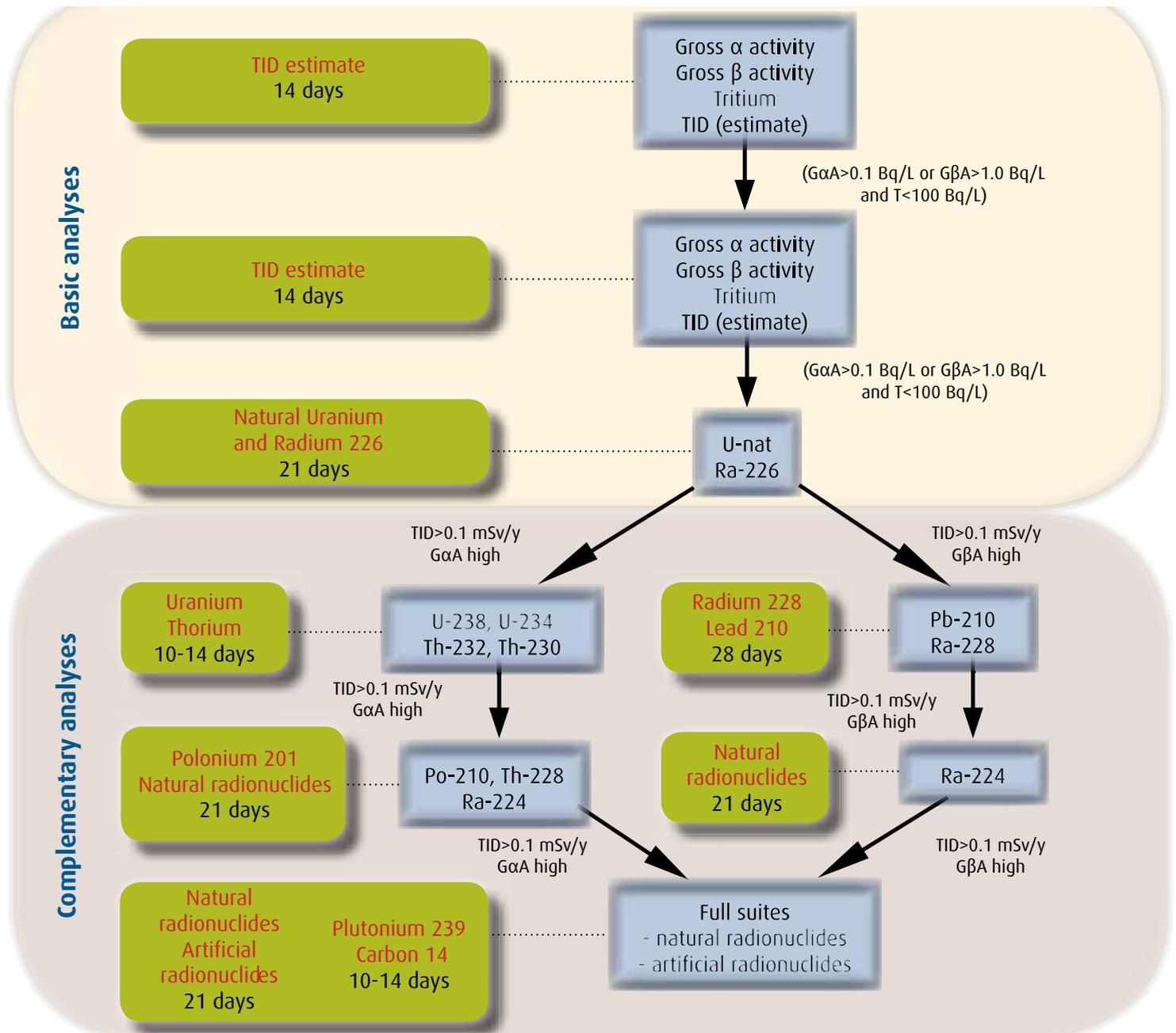
Our analytical solution for drinking water is based on the European Directive 98/83/EC. As each national law defines some specific radionuclides to be analyzed, our packages can be modified to reflect the local legislation, keeping the same structure for complementary analyses. A conservative estimate of Total Indicative Dose (TID) is evaluated from gross alpha activity (G α A) and from gross beta activity (G β A) corrected for K-40.



Parameter	Amount of sample (mL)	Parameter	Amount of sample (mL)
Total indicative dose	1 000	Natural radionuclides*	2 000
Uranium	500	Artificial radionuclides*	2 000
Radium 226	1 000	Lead 210	1 000
Uranium 238/235/234	20	Radium 228	3 000
Thorium 232/230	20	Plutonium 239	250
Polonium 210	500	Carbon 14	1 000

* for natural and artificial radionuclides determined together, the volume needed is 2000 mL.

ANALYTICAL SOLUTION SCHEME FOR DRINKING WATER



- Mostly basic analyses are sufficient to explain increased radioactivity.
- Complementary analyses are relatively rare and are performed after agreement with the client.
- When TID is lower than 0.1 mSv/y, further analysis is not necessary and water can be used for public supply.
- When TID value is higher than 0.1 mSv/y (or T is higher than 100 Bq/L), tested water cannot be used for public supply and purification processes should be applied to decrease content of radionuclides at acceptable levels.

Radon 222 and its daughters are not included in evaluation of TID, but local legislation limits can exist for its content in drinking water.

For the determination of radon, use 300 ml of water without headspace and mention the date and time of sampling.

Do not hesitate to contact us:

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