

[To Graphic Database](#)

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MONITORING TO DOSE CALCULATION (MONDAL)

"MONDAL2" is a PC based software that will help users to estimate intake of radionuclides inhaled or ingested by workers or by members of the public and resulting committed effective dose based on measurement results of individual monitoring such as in vivo counting or bioassay measurement.

"MONDAL2" is a free software. If you would like to receive it, please send an e-mail to

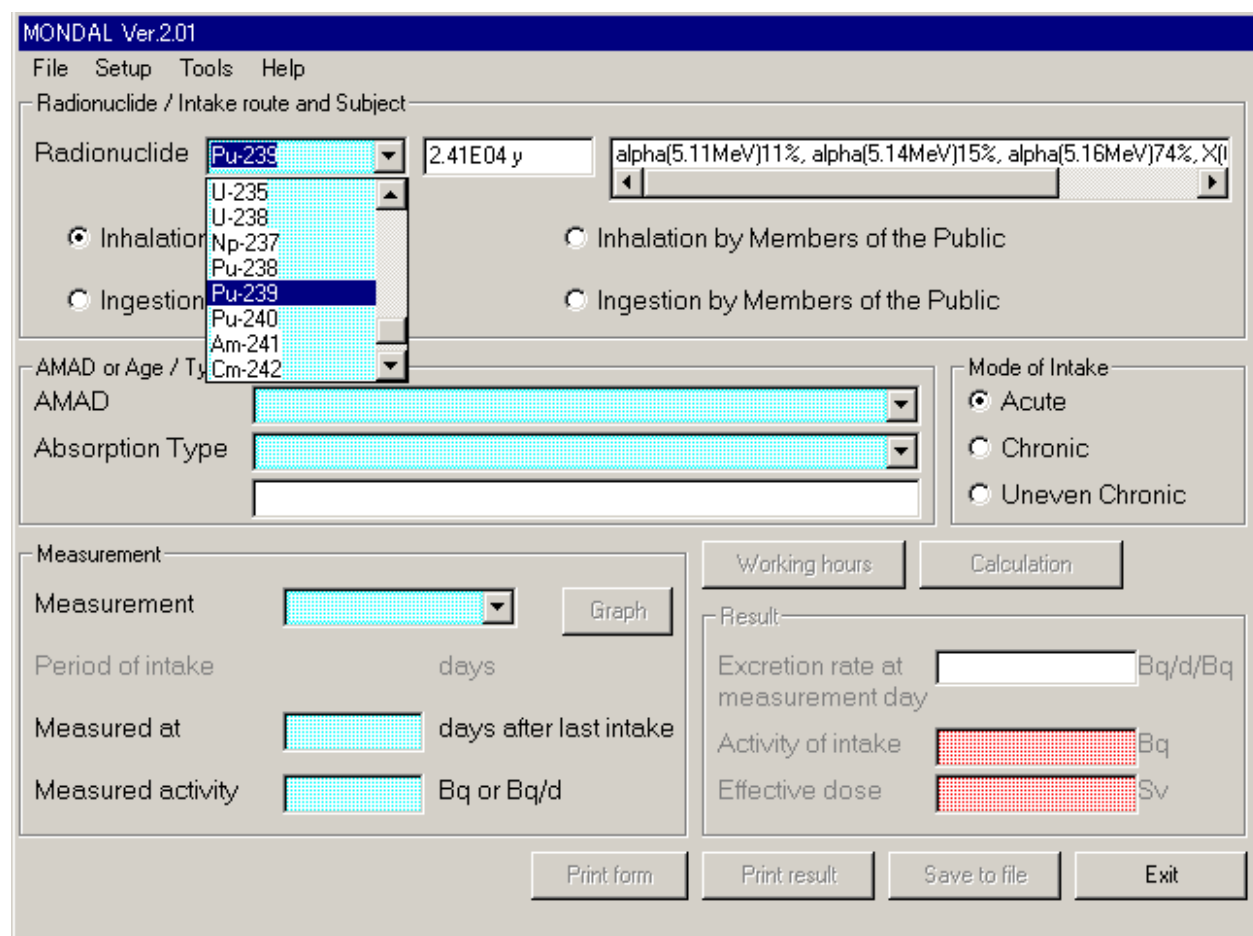
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Outline of "MONDAL2"

1. Select one of 42 radionuclides in the pull-down menu.



The physical half-life and possible radiations used for monitoring of the radionuclide are shown in the text boxes.

2. Select a combination of intake route and subject by clicking a radio button.

MONDAL Ver.2.01

File Setup Tools Help

Radionuclide / Intake route and Subject

Radionuclide **Pu-239** 2.41E04 y alpha(5.11MeV)11%, alpha(5.14MeV)15%, alpha(5.16MeV)74%, X(i

☒ Inhalation by Workers ☐ Inhalation by Members of the Public

☐ Ingestion by Workers ☐ Ingestion by Members of the Public

AMAD or Age / Type or f1

AMAD **AMAD**

Absorption Type **AMAD**

Mode of Intake

☒ Acute ☐ Chronic ☐ Uneven Chronic

Measurement

Measurement **AMAD** Graph

Period of intake **AMAD** days

Measured at **AMAD** days after last intake

Measured activity **AMAD** Bq or Bq/d

Working hours Calculation

Result

Excretion rate at measurement day **AMAD** Bq/d/Bq

Activity of intake **AMAD** Bq

Effective dose **AMAD** Sv

Print form Print result Save to file Exit

3. Select one of 6 AMADs in the pull down menu (0.1, 0.3, 1,3, 5, 10 microns).

MONDAL Ver.2.01

File Setup Tools Help

Radionuclide / Intake route and Subject

Radionuclide **Pu-239** 2.41E04 y alpha(5.11MeV)11%, alpha(5.14MeV)15%, alpha(5.16MeV)74%, X(i

☒ Inhalation by Workers ☐ Inhalation by Members of the Public

☐ Ingestion by Workers ☐ Ingestion by Members of the Public

AMAD or Age / Type or f1

AMAD **5 micron(default)**

Absorption Type **0.1micron**

Mode of Intake

☒ Acute ☐ Chronic ☐ Uneven Chronic

Measurement

Measurement **AMAD** Graph

Period of intake **AMAD** days

Measured at **AMAD** days after last intake

Measured activity **AMAD** Bq or Bq/d

Calculation

Result

Excretion rate at measurement day **AMAD** Bq/d/Bq

Activity of intake **AMAD** Bq

Effective dose **AMAD** Sv

Print form Print result Save to file Exit

In the case of members of the public an age-group is selected among 3 months, 1 year, 5 years, 10 years,15 years and adult, instead of AMAD's.

4. Select an absorption type of the inhaled materials in the pull down menu.

MONDAL Ver.2.01

File Setup Tools Help

Radionuclide / Intake route and Subject

Radionuclide Pu-239 2.41E04 y alpha(5.11MeV)11%, alpha(5.14MeV)15%, alpha(5.16MeV)74%, X(i

☒ Inhalation by Workers ☐ Inhalation by Members of the Public

☐ Ingestion by Workers ☐ Ingestion by Members of the Public

AMAD or Age / Type or f1

AMAD 5 micron(default)

Absorption Type Type M

Mode of Intake

☒ Acute ☐ Chronic ☐ Uneven Chronic

Measurement

Measurement Graph

Period of intake days

Measured at days after last intake

Measured activity Bq/d

Working hours Calculation

Result

Excretion rate at Bq/d/Bq

Activity of intake Bq

Effective dose Sv

Print form Print result Save to file Exit

5. Select a mode of intake by clicking a radio button.

MONDAL Ver.2.01

File Setup Tools Help

Radionuclide / Intake route and Subject

Radionuclide Pu-239 2.41E04 y alpha(5.11MeV)11%, alpha(5.14MeV)15%, alpha(5.16MeV)74%, X(i

☒ Inhalation by Workers ☐ Inhalation by Members of the Public

☐ Ingestion by Workers ☐ Ingestion by Members of the Public

AMAD or Age / Type or f1

AMAD 5 micron(default)

Absorption Type Type M

Mode of Intake

☒ Acute ☐ Chronic ☐ Uneven Chronic

Measurement

Measurement Graph

Period of intake days

Measured at days after last intake

Measured activity Bq/d

Working hours Calculation

Result

Excretion rate at Bq/d/Bq

Activity of intake Bq

Effective dose Sv

Print form Print result Save to file Exit

6. Select a sample for measurement in the pull down menu.

MONDAL Ver.2.01

File Setup Tools Help

Radionuclide / Intake route and Subject

Radionuclide **Pu-239** 2.41E04 y alpha(5.11MeV)11%, alpha(5.14MeV)15%, alpha(5.16MeV)74%, X[1]

☒ Inhalation by Workers ☐ Inhalation by Members of the Public

☐ Ingestion by Workers ☐ Ingestion by Members of the Public

AMAD or Age / Type or f1

AMAD **5 micron(default)**

Absorption Type **Type M**

Unspecified compounds

Mode of Intake

☒ Acute ☐ Chronic ☐ Uneven Chronic

Measurement

Measurement **Urine** Graph

Period of intake **Lung**

Measured at **Urine**

Measured activity **Faeces** days after last intake

Measured activity **Urine** Bq/d

Working hours Calculation

Result

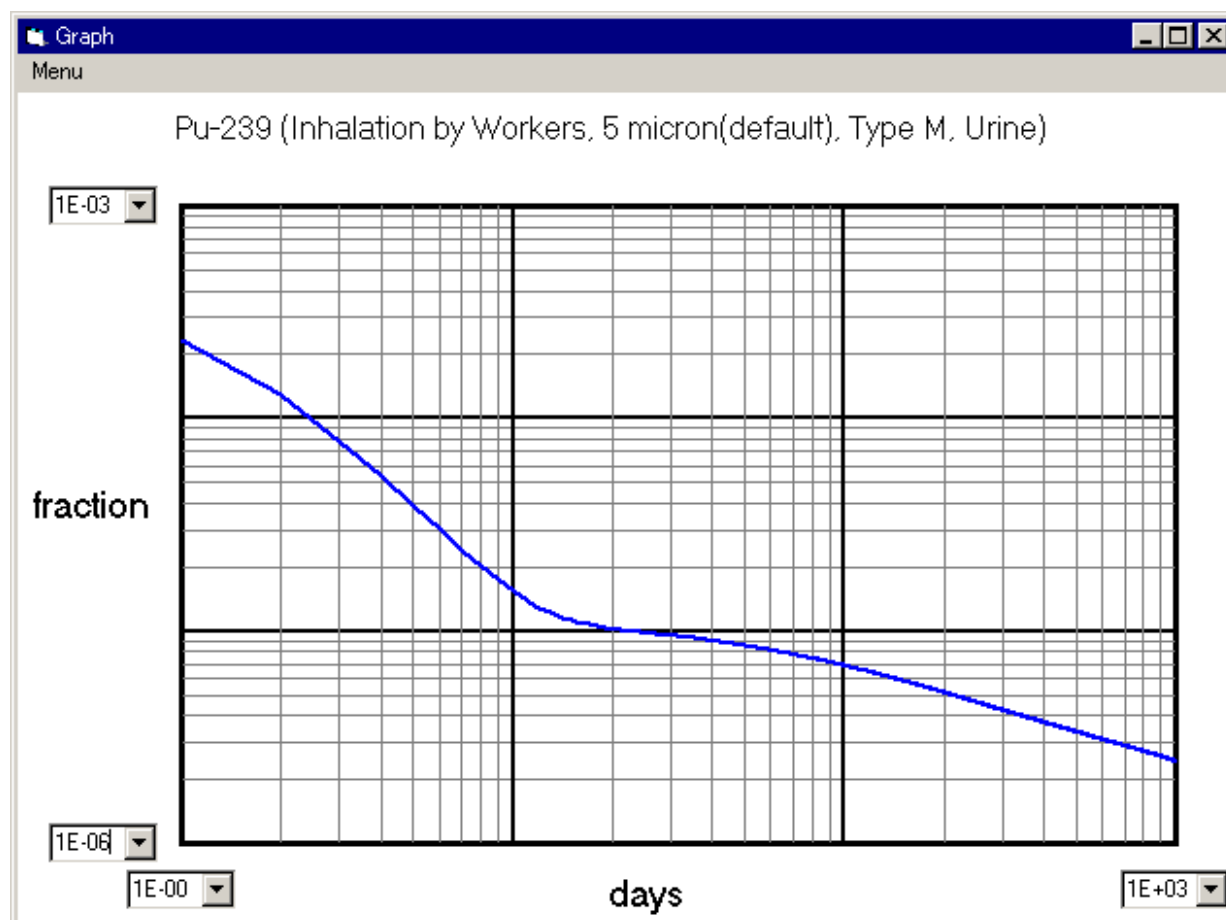
Excretion rate at measurement day **Urine** Bq/d/Bq

Activity of intake **Urine** Bq

Effective dose **Urine** Sv

Print form Print result Save to file Exit

7. By clicking "Graph" button, a graph is shown for predicted values of the measurement quantity selected above as a function of time following single intake of the radionuclide.



8. Input a value of measurement day.

MONDAL Ver.2.01

File Setup Tools Help

Radionuclide / Intake route and Subject

Radionuclide Pu-239 2.41E04 y alpha(5.11MeV)11%, alpha(5.14MeV)15%, alpha(5.16MeV)74%, X[0]

☒ Inhalation by Workers ☐ Inhalation by Members of the Public

☐ Ingestion by Workers ☐ Ingestion by Members of the Public

AMAD or Age / Type or f1

AMAD 5 micron(default)

Absorption Type Type M

Unspecified compounds

Mode of Intake

☒ Acute ☐ Chronic ☐ Uneven Chronic

Measurement

Measurement Urine Graph

Period of intake days

Measured at 3 days after last intake

Measured activity Bq/d

Working hours Calculation

Result

Excretion rate at measurement day Bq/d/Bq

Activity of intake Bq

Effective dose Sv

Print form Print result Save to file Exit

9. Input a value of measured activity.

MONDAL Ver.2.01

File Setup Tools Help

Radionuclide / Intake route and Subject

Radionuclide Pu-239 2.41E04 y alpha(5.11MeV)11%, alpha(5.14MeV)15%, alpha(5.16MeV)74%, X[0]

☒ Inhalation by Workers ☐ Inhalation by Members of the Public

☐ Ingestion by Workers ☐ Ingestion by Members of the Public

AMAD or Age / Type or f1

AMAD 5 micron(default)

Absorption Type Type M

Unspecified compounds

Mode of Intake

☒ Acute ☐ Chronic ☐ Uneven Chronic

Measurement

Measurement Urine Graph

Period of intake days

Measured at 3 days after last intake

Measured activity 0.1 Bq/d

Working hours Calculation

Result

Excretion rate at measurement day Bq/d/Bq

Activity of intake Bq

Effective dose Sv

Print form Print result Save to file Exit

10. By clicking "Calculation" button, results for activity of intake and effective dose appear in the red windows soon.

MONDAL Ver.2.01

File Setup Tools Help

Radionuclide / Intake route and Subject

Radionuclide: Pu-239, Half-life: 2.41E04 y, Decay: alpha(5.11MeV)11%, alpha(5.14MeV)15%, alpha(5.16MeV)74%, X[...]

☒ Inhalation by Workers
 ☐ Inhalation by Members of the Public

☐ Ingestion by Workers
 ☐ Ingestion by Members of the Public

AMAD or Age / Type or f1

AMAD: 5 micron(default)

Absorption Type: Type M

Unspecified compounds

Mode of Intake:

☒ Acute

☐ Chronic

☐ Uneven Chronic

Measurement

Measurement: Urine

Period of intake: days

Measured at: 3 days after last intake

Measured activity: 0.1 Bq/d

Graph

Working hours

Calculation

Result

Excretion rate at measurement day: 7.77E-05 Bq/d/Bq

Activity of intake: 1.3E+03 Bq

Effective dose: 4.1E-02 Sv

Print form

Print result

Save to file

Exit

The input parameters and conditions, and the results of the calculation are output to a printer or a text file by clicking the buttons "Print result" or "Save to file".

[To Graphic Database](#)