

Report on the assessment of age by the luminescent method  
74/2023

Customer: Customer  
Job no.: Job

Catalog no.: 5206      Sample name: Mercator Postenwerken\_M2

A. Laboratory number and dating result

GdTL-4489 12.04(48) ka
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B. Laboratory measurements

1. Determination of the dose rate

radioactivity measured by: germanium spectrometer

mineral: quartz

etched in 40% HF for 60 min

grain size: 90-125  $\mu\text{m}$

alpha rad. effect.: 0.10(2) assumed

assumed mean water content: 10(3)%

Activity, Bq/kg		
Th-232	U-238	K-40
29.3(11)	30.16(84)	478(22)

Effective dose rate, Gy/ka				
alpha	beta	gamma	cosmic rays	total
0.0568(94)	1.472(77)	0.902(26)	0.179(18)	2.610(84)

2. Determination of the equivalent dose

method – OSL-SAR single aliquot regenerative

doses of beta radiation (in Gy):

regenerative: 20, 25, 35, 45

nonlinearity of growth of OSL - taken into account


Equivalent dose 31.60(70) Gy
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3. Notes:

CAM (Central Age Model) for 16 aliquots

4. When using dating results in a publication please refer to:

Moska, P., Bluszcz, A., Poręba, G.; Tudyka, K., Adamiec, G., Szymak, A., Przybyła, A., 2021, Luminescence dating procedures at the Gliwice Luminescence Dating Laboratory. Geochronometria, vol. 48, pp. 1-15, doi: 10.2478/geochr-2021-0001

  
Director of Laboratory

C. Explanatory notes

- Age stated in section A is expressed in years (a), thousand (ka) or million (Ma) years before the year 1950.
- Total standard uncertainties expressed in parentheses are given in the last two (or one) digits of the result. Standard uncertainties have been assessed basing on estimated accuracy of laboratory measurements and do not account for any extra-laboratory factors.
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Report on the assessment of age by the luminescent method  
75/2023

Customer: Customer  
Job no.: Job

Catalog no.: 5207      Sample name: Mercator Postenwerken\_M4

A. Laboratory number and dating result

GdTL-4490 2.038(98) ka
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B. Laboratory measurements

1. Determination of the dose rate

radioactivity measured by: germanium spectrometer

mineral: quartz

etched in 40% HF for 60 min

grain size: 125-200  $\mu\text{m}$

alpha rad. effect.: 0.10(2) assumed

assumed mean water content: 10(3)%

Activity, Bq/kg		
Th-232	U-238	K-40
18.82(69)	17.88(53)	329(15)

Effective dose rate, Gy/ka				
alpha	beta	gamma	cosmic rays	total
0.0235(39)	0.955(52)	0.583(18)	0.210(21)	1.771(59)

2. Determination of the equivalent dose

method – OSL-SAR single aliquot regenerative

doses of beta radiation (in Gy):

regenerative: 2, 3, 4, 6

nonlinearity of growth of OSL - taken into account


Equivalent dose 3.74(12) Gy
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3. Notes:

CAM (Central Age Model) for 18 aliquots

4. When using dating results in a publication please refer to:

Moska, P., Bluszcz, A., Poręba, G.; Tudyka, K., Adamiec, G., Szymak, A., Przybyła, A., 2021, Luminescence dating procedures at the Gliwice Luminescence Dating Laboratory. Geochronometria, vol. 48, pp. 1-15, doi: 10.2478/geochr-2021-0001

  
Director of Laboratory

C. Explanatory notes

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Report on the assessment of age by the luminescent method  
76/2023

Customer: Customer  
Job no.: Job

Catalog no.: 5208      Sample name: Mercator Postenwerken\_M5

A. Laboratory number and dating result

GdTL-4491 9.67(45) ka
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B. Laboratory measurements

1. Determination of the dose rate

radioactivity measured by: germanium spectrometer

mineral: quartz

etched in 40% HF for 60 min

grain size: 125-200  $\mu\text{m}$

alpha rad. effect.: 0.10(2) assumed

assumed mean water content: 10(3)%

Activity, Bq/kg		
Th-232	U-238	K-40
17.68(69)	19.27(58)	360(17)

Effective dose rate, Gy/ka				
alpha	beta	gamma	cosmic rays	total
0.0235(39)	1.030(57)	0.605(19)	0.199(20)	1.857(63)

2. Determination of the equivalent dose

method – OSL-SAR single aliquot regenerative

doses of beta radiation (in Gy):

regenerative: 10, 12, 16, 25

nonlinearity of growth of OSL - taken into account


Equivalent dose 18.10(55) Gy
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3. Notes:

CAM (Central Age Model) for 18 aliquots

4. When using dating results in a publication please refer to:

Moska, P., Bluszcz, A., Poręba, G.; Tudyka, K., Adamiec, G., Szymak, A., Przybyła, A., 2021, Luminescence dating procedures at the Gliwice Luminescence Dating Laboratory. Geochronometria, vol. 48, pp. 1-15, doi: 10.2478/geochr-2021-0001

  
Director of Laboratory

C. Explanatory notes

- Age stated in section A is expressed in years (a), thousand (ka) or million (Ma) years before the year 1950.
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Report on the assessment of age by the luminescent method  
77/2023

Customer: Customer  
Job no.: Job

Catalog no.: 5209      Sample name: Mercator Postenwerken\_M6

A. Laboratory number and dating result

GdTL-4492 9.69(52) ka
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B. Laboratory measurements

1. Determination of the dose rate

radioactivity measured by: germanium spectrometer

mineral: quartz

etched in 40% HF for 60 min

grain size: 90-125  $\mu\text{m}$

alpha rad. effect.: 0.1(2) assumed

assumed mean water content: 10(3)%

Activity, Bq/kg		
Th-232	U-238	K-40
37.0(12)	34.64(88)	465(21)

Effective dose rate, Gy/ka				
alpha	beta	gamma	cosmic rays	total
0.069(98)	1.522(76)	1.010(28)	0.195(20)	2.80(13)

2. Determination of the equivalent dose

method – OSL-SAR single aliquot regenerative

doses of beta radiation (in Gy):

regenerative: 15, 20, 30, 45

nonlinearity of growth of OSL - taken into account


Equivalent dose 27.30(70) Gy
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3. Notes:

CAM (Central Age Model) for 19 aliquots

4. When using dating results in a publication please refer to:

Moska, P., Bluszcz, A., Poręba, G.; Tudyka, K., Adamiec, G., Szymak, A., Przybyła, A., 2021, Luminescence dating procedures at the Gliwice Luminescence Dating Laboratory. Geochronometria, vol. 48, pp. 1-15, doi: 10.2478/geochr-2021-0001

  
Director of Laboratory

C. Explanatory notes

- Age stated in section A is expressed in years (a), thousand (ka) or million (Ma) years before the year 1950.
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Report on the assessment of age by the luminescent method  
78/2023

Customer: Customer  
Job no.: Job

Catalog no.: 5210      Sample name: Mercator Postenwerken\_M17

A. Laboratory number and dating result

GdTL-4493 3.04(16) ka
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B. Laboratory measurements

1. Determination of the dose rate

radioactivity measured by: germanium spectrometer

mineral: quartz

etched in 40% HF for 60 min

grain size: 90-125  $\mu\text{m}$

alpha rad. effect.: 0.10(2) assumed

assumed mean water content: 10(3)%

Activity, Bq/kg		
Th-232	U-238	K-40
17.84(68)	19.60(58)	314(15)

Effective dose rate, Gy/ka				
alpha	beta	gamma	cosmic rays	total
0.0357(59)	0.958(51)	0.576(17)	0.207(21)	1.776(58)

2. Determination of the equivalent dose

method – OSL-SAR single aliquot regenerative

doses of beta radiation (in Gy):

regenerative: 4, 5, 6.5, 9

nonlinearity of growth of OSL - taken into account

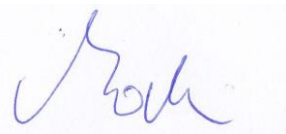
Equivalent dose 5.53(20) Gy
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3. Notes:

CAM (Central Age Model) for 16 aliquots

4. When using dating results in a publication please refer to:

Moska, P., Bluszcz, A., Poręba, G.; Tudyka, K., Adamiec, G., Szymak, A., Przybyła, A., 2021, Luminescence dating procedures at the Gliwice Luminescence Dating Laboratory. Geochronometria, vol. 48, pp. 1-15, doi: 10.2478/geochr-2021-0001

  
Director of Laboratory

C. Explanatory notes

- Age stated in section A is expressed in years (a), thousand (ka) or million (Ma) years before the year 1950.
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Report on the assessment of age by the luminescent method  
79/2023

Customer: Customer  
Job no.: Job

Catalog no.: 5211      Sample name: Mercator Postenwerken\_M19

A. Laboratory number and dating result

GdTL-4494 6.62(42) ka
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B. Laboratory measurements

1. Determination of the dose rate

radioactivity measured by: germanium spectrometer

mineral: quartz

etched in 40% HF for 60 min

grain size: 125-200  $\mu\text{m}$

alpha rad. effect.: 0.10(2) assumed

assumed mean water content: 10(3)%

Activity, Bq/kg		
Th-232	U-238	K-40
15.56(57)	17.28(47)	330(15)

Effective dose rate, Gy/ka				
alpha	beta	gamma	cosmic rays	total
0.0209(35)	0.939(51)	0.545(16)	0.207(21)	1.711(58)

2. Determination of the equivalent dose

method – OSL-SAR single aliquot regenerative

doses of beta radiation (in Gy):

regenerative: 5, 7, 12, 20

nonlinearity of growth of OSL - taken into account


Equivalent dose 11.45(60) Gy
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3. Notes:

CAM (Central Age Model) for 24 aliquots

4. When using dating results in a publication please refer to:

Moska, P., Bluszcz, A., Poręba, G.; Tudyka, K., Adamiec, G., Szymak, A., Przybyła, A., 2021, Luminescence dating procedures at the Gliwice Luminescence Dating Laboratory. Geochronometria, vol. 48, pp. 1-15, doi: 10.2478/geochr-2021-0001

  
Director of Laboratory

C. Explanatory notes

- Age stated in section A is expressed in years (a), thousand (ka) or million (Ma) years before the year 1950.
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Report on the assessment of age by the luminescent method  
80/2023

Customer: Customer  
Job no.: Job

Catalog no.: 5212      Sample name: Mercator Postenwerken\_M22

A. Laboratory number and dating result

GdTL-4495 14.60(63) ka
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B. Laboratory measurements

1. Determination of the dose rate

radioactivity measured by: germanium spectrometer

mineral: quartz

etched in 40% HF for 45 min

grain size: 45-63  $\mu\text{m}$

alpha rad. effect.: 0.10(2) assumed

assumed mean water content: 15(5)%

Activity, Bq/kg		
Th-232	U-238	K-40
30.9(11)	27.93(76)	481(22)

Effective dose rate, Gy/ka				
alpha	beta	gamma	cosmic rays	total
0.137(23)	1.436(87)	0.859(31)	0.172(17)	2.604(97)

2. Determination of the equivalent dose

method – OSL-SAR single aliquot regenerative

doses of beta radiation (in Gy):

regenerative: 25, 30, 35, 50

nonlinearity of growth of OSL - taken into account

Equivalent dose 38.20(80) Gy
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3. Notes:

CAM (Central Age Model) for 15 aliquots

4. When using dating results in a publication please refer to:

Moska, P., Bluszcz, A., Poręba, G.; Tudyka, K., Adamiec, G., Szymak, A., Przybyła, A., 2021, Luminescence dating procedures at the Gliwice Luminescence Dating Laboratory. Geochronometria, vol. 48, pp. 1-15, doi: 10.2478/geochr-2021-0001



Director of Laboratory

C. Explanatory notes

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Report on the assessment of age by the luminescent method  
81/2023

Customer: Customer  
Job no.: Job

Catalog no.: 5213      Sample name: Mercator Postenwerken\_M25

A. Laboratory number and dating result

GdTL-4496 14.50(64) ka
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B. Laboratory measurements

1. Determination of the dose rate

radioactivity measured by: germanium spectrometer

mineral: quartz

etched in 40% HF for 45 min

grain size: 45-63  $\mu\text{m}$

alpha rad. effect.: 0.10(2) assumed

assumed mean water content: 15(5)%

Activity, Bq/kg		
Th-232	U-238	K-40
24.78(80)	27.82(64)	411(18)

Effective dose rate, Gy/ka				
alpha	beta	gamma	cosmic rays	total
0.122(21)	1.255(74)	0.749(26)	0.179(18)	2.305(83)

2. Determination of the equivalent dose

method – OSL-SAR single aliquot regenerative

doses of beta radiation (in Gy):

regenerative: 20, 25, 35, 50

nonlinearity of growth of OSL - taken into account


Equivalent dose 33.60(80) Gy
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3. Notes:

CAM (Central Age Model) for 15 aliquots

4. When using dating results in a publication please refer to:

Moska, P., Bluszcz, A., Poręba, G.; Tudyka, K., Adamiec, G., Szymak, A., Przybyła, A., 2021, Luminescence dating procedures at the Gliwice Luminescence Dating Laboratory. Geochronometria, vol. 48, pp. 1-15, doi: 10.2478/geochr-2021-0001

  
Director of Laboratory

C. Explanatory notes

- Age stated in section A is expressed in years (a), thousand (ka) or million (Ma) years before the year 1950.
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- Please state the laboratory number when quoting the result of dating and give references to papers indicated above.