



German External Quality Assessment Scheme

Prof. Dr. med. Hans Drexler

Institute and Out-Patient Clinic for Occupational, Social and Environmental
Medicine of the Friedrich-Alexander University

REQUEST FORM

G-EQUAS 59 - 2017

Please send this form until **2nd March 2017** at the latest to:

Prof. Dr. med. H. Drexler

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of the Friedrich-Alexander University

Schillerstr. 25

91054 Erlangen

Germany

Email: info@g-equas.de

Please note that you also can order online on g-equas.de

Lab.-ID:

**We would appreciate it very much if you could check/update your
contact dates online (www.g-equas.de).**

**Please note that you can only participate in G-EQUAS if we have
the name of a contact partner, a valid delivery address, e-mail address
and telephone number!**

ORDER

Please tick the parameters that you would like to order in the current round.

I / we are going to participate in G-EQUAS 59 and would like to order the following control materials:

METALS

ANALYTICAL PARAMETERS IN CONTROL BLOOD

- **3 ml control blood** (for each concentration level) are available for analysis:

Occupational medical field

(control material **1** A/B)

- 1 Lead (Pb)
- 2 Cadmium (Cd)
- 3 Chromium (Cr)
- 4 Cobalt (Co)
- 5 Manganese (Mn)
- 6 Nickel (Ni)
- 7 Mercury (Hg)

Environmental medical field

(control material **7** A/B)

- 70 Lead (Pb)
- 71 Cadmium (Cd)
- 72 Mercury (Hg)

ANALYTICAL PARAMETERS IN CONTROL PLASMA

- **3 ml control plasma** (for each concentration level) are available for analysis:

(control material **11** A/B)

- 107 Aluminium (Al)
- 108 Chromium (Cr)
- 109 Cobalt (Co)
- 110 Copper (Cu)
- 112 Manganese (Mn)
- 113 Nickel (Ni)

(control material **11** A/B)

- 114 Platinum (Pt)
- 115 Selenium (Se)
- 116 Zinc (Zn)
- 157 Molybdenum (Mo)
- 158 Magnesium (Mg)
- 199 Lead (Pb) – NEW!**

Inorganic parameters

ANALYTICAL PARAMETERS IN CONTROL URINE

- **5 ml control urine** (for each concentration level) are available for analysis:

Occupational medical field

(control material **2** A/B)

- 8 Aluminium (Al)
- 9 Antimony (Sb)
- 10 Arsenic (by hydride technique)
(As- Hydride)
- 11 Arsenic speciation (As³⁺, As⁵⁺, MMA*,
DMA*, AsB)
- 15 Beryllium (Be)
- 16 Lead (Pb)
- 17 Cadmium (Cd)
- 18 Chromium (Cr)
- 19 Cobalt (Co)

- 20 Fluoride (F)
- 21 Copper (Cu)
- 22 Manganese (Mn)
- 23 Nickel (Ni)

* MMA: Monomethylarsonic acid

* DMA: Dimethylarsinic acid

Occupational medical field

(control material **2** A/B)

- 24 Mercury (Hg)
- 25 Thallium (Tl)
- 26 Vanadium (V)

- 27 Zinc (Zn)

- 29 Creatinine
- 126 Total Arsenic (As-tot)
- 141 Selenium (Se)
- 142 Tungsten (W)
- 145 Iodine compounds (as iodine) in urine
(I)
- 159 Barium (Ba)
- 160 Lithium (Li)
- 161 Molybdenum (Mo)
- 176 Gallium (Ga)
- 194 Indium (In)
- 198 Tellurium (Te) – NEW!
- 201 Germanium (Ge) – NEW!

Inorganic parameters

ANALYTICAL PARAMETERS IN **CONTROL URINE**

- **5 ml control urine** (for each concentration level) are available for analysis:

Environmental medical field

(control material **8** A/B)

- 73 Arsenic (by hydride technique) (As- Hydride)
- 74 Cadmium (Cd)
- 75 Chromium (Cr)
- 76 Nickel (Ni)
- 77 Mercury (Hg)
- 78 Platinum (Pt)
- 156 Total Arsenic (As-tot)
- 162 Calcium (Ca)
- 163 Copper (Cu)
- 164 Strontium (Sr)
- 165 Zinc (Zn)
- 190 Antimony (Sb)
- 191 Molybdenum (Mo)
- 192 Tin (Sn)
- 195 Arsenic species (As+5, As+3, MMA, DMA, AsB)

Organic Parameters

ANALYTICAL PARAMETERS IN CONTROL URINE

- **5 ml control urine** (for each concentration level) are available for the analysis in the **occupational medical field**; **2 x 5 ml control urine** (for each concentration level) are available for the **environmental medical field**:

Occupational medical field

(control material **3** A/B, 5 ml)

- 30 Hippuric acid (HA)
- 32 Mandelic acid (MA)
- 33 Methylhippuric acids (MHA)
- 34 t,t-Muconic acid (t,t-MA)
- 37 Phenylglyoxylic acid (PGA)
- 39 Trichloroacetic acid (TCA)
- 41 2-Thio-thiazolidine-4-carboxylic acid (TTCA)
- 42 Ethoxyacetic acid (EAA)
- 43 Butoxy acetic acid (BAA)
- 44 N-Methylformamide (NMF)
- 45 2,5-Hexandione (2,5-HD)
- 46 Creatinine
- 117 5-Hydroxy-N-methylpyrrolidine (5-HNMP),
2-Hydroxy-N-methylsuccinimide (2-HMSI)
- 135 Methoxyacetic acid (MAA)
- 28 δ-Aminolaevulinic acid (ALA)

Environmental medical field

(control material **9** A/B, 2 x 5 ml)

- 80 Pyrethroide metabolites (Br₂-CA, cis-Cl₂-CA, trans-Cl₂-CA, 3-PBA)
- 87 Alkyl phosphates* (DMP, DMTP, DMDTP, DEP, DETP, DEDTP)
- 93 Cotinine, Nikotine
- 122 Phthalate metabolites "DEHP" (5-OH-MEHP, 5-oxo-MEHP, 5-carboxy-MEPP, MEHP)
- 129 Phthalate metabolites "other" (MnBP, MiBP, MBzP)

* Alkyl phosphates:

DMP: Dimethylphosphate
DMTP: Dimethylthiophosphate
DMDTP: Dimethyldithiophosphate

DEP: Diethylphosphate
DETP: Diethylthiophosphate
DEDTP: Diethyldithiophosphate

Tobacco-specific N-nitrosamines

Environmental medical field

- **5 ml control urine** (for each concentration level) are available for analysis:

Tobacco-specific N-nitrosamines

(control material **18** A/B, 5 ml)

172 4-(Methylnitrosamine)-1-(3-pyridyl)-1-butanol after hydrolysis (NNAL)

Mercapturic acids in urine

Occupational medical field

- **5 ml control urine** (for each concentration level) are available for analysis:

Mercapturic acids in urine

(control material **17** A/B, 5 ml)

- 38 S-PMA (Benzene-metabolite)
- 147 Butadiene-metabolites (DHBMA, MHBMA)
- 149 Acrylamide-/Acrylonitrile- metabolite (AAMA, GAMA, CEMA)
- 152 other mercapturic acids (HEMA, 2-HPMA, 3-HPMA)
- 155 AMCC (DMF-metabolite)

S-PMA: S-Phenylmercapturic acid
AMCC: Acetyl-S-(N-methylcarbamoyl)cysteine
DHBMA: 3,4-Dihydroxybutylmercapturic acid
MHBMA: 2-Hydroxy-3-butenylmercapturic acid
AAMA: 2-Carbonamideethylmercapturic acid

GAMA: 2-Carbonamide-2-hydroxyethylmercapturic acid
CEMA: 2-Cyanoethylmercapturic acid
HEMA: 2-Hydroxyethylmercapturic acid
2-HPMA: 2-Hydroxypropylmercapturic acid
3-HPMA: 3-Hydroxypropylmercapturic acid

Amines and phenolic parameters (after hydrolysis)

(The control material is spiked with the native phenolic compounds as well as with their conjugates (glucuronides and acetates)).

- To analyse parameter (-group) 36, 40,134, 174,175,177,178 and 179 (control material **14**, occupational medical field) **5 ml control urine** are available.
- To analyse parameter (-group) 79, 86, 127,140,166 and 167 (control material **15**, environmental medical field) **2 x 5 ml control urine** are available.

Amines and phenolic parameters (after hydrolysis)

(control material **14 / 15** A/B, 5 ml in brown glass vials)

36	Phenol
40	o-Cresol
79	1-Hydroxypyrene (1-HP)
86	Pentachlorophenol (PCP)
127	1-Naphthol, 2-Naphthol
140	Bisphenol A
166	Trichloropyridinol (TCPy)
167	Isopropoxyphenol (IPP)
174	4-Nitrophenol
175	Aniline
134	Diisocyanate metabolites, aromatic (MDA, 2,4-TDA, 2,6-TDA, 1,5-NDA)
180	Diisocyanate metabolites, aliphatic (IPDA, HDA)
200	Triclosan (TCS)

New!!

HEADSPACE ANALYSIS

Control blood

AROMATIC AND HALOGENATED HYDROCARBONS

- To analyze the aromatic- or chlorinated hydrocarbons **2 x 2 ml or 2 x 1 ml control blood** (for each concentration level and each group of hydrocarbons) are available in gas-tight ampoules. The ampoules are offered in two different sizes due to the different headspace analysers.

Aromatic hydrocarbons

(control material **4** A/B)

47 Benzene, Toluene, Xylenes, Ethylbenzene

For carrying out the determination I require vials with the following volume:

20 ml (Perkin Elmer HS) (2 ml blood)

10 ml (1 ml blood)

Halogenated hydrocarbons

(control material **5** A/B)

51 Dichloromethane, 1,2-Dichloroethane, Trichloroethene, Tetrachloroethene, 1,1,1-Trichloroethane, Tetrachloromethane, Trichloromethane

For carrying out the determination I require vials with the following volume:

20 ml (Perkin Elmer HS) (2 ml blood)

10 ml (1 ml blood)

Control urine

ALCOHOLS/ KETONES/ ETHER

- To analyze alcohols/ketones **2 x 2 ml or 2 x 1 ml control urine** are available in gas-tight ampoules. The ampoules are offered in two different sizes due to the different headspace-analysers.

Alcohols/Ketones/Ether

(control material **12** A/B)

54 Methanol, Methyl-tert-butylether, Tetrahydrofuran, n-Butanol

55 Acetone, Methylethylketone (MEK), Methylisobutylketone, Methyl-n-butylketone

For carrying out the determination I require vials with the following volume:

20 ml (Perkin Elmer HS) (2 ml urine)

10 ml (1 ml urine)

Aromatic hydrocarbons

(control material **19** A/B)

182 Benzene, Toluene, Xylenes, Ethylbenzene

For carrying out the determination I require vials with the following volume:

20 ml (Perkin Elmer HS) (2 ml urine)

10 ml (1 ml urine)

ORGANOHALOGEN COMPOUNDS

ANALYTICAL PARAMETERS IN CONTROL SERUM

- **5 ml control serum** (for each concentration level) are available for analysis of a parameter/group of parameters:

Organohalogen compounds

(control material **10** A/B)

95	p,p`-DDT	p,p`-Dichlorodiphenyltrichloroethane
	p,p`-DDE	p,p`-Dichlorodipenyldichloroethene
96	HCB	Hexachlorobenzene
97	α -, β -, γ -HCH	Hexachlorocyclohexane
100	PCB	Polychlorinated biphenyls (Ballschmitter numbers: 28, 52, 101, 138, 153, 180)
106	PCP	Pentachlorophenol
120	PFOA	Perfluorooctanoic acid
	PFOS	Perfluorooctanoic sulfonic acid (n-Isomer)

N-terminal adducts in Hemoglobin

Human globin - N-terminal adducts in hemoglobin

- To analyse N-terminal adducts 300 mg human globin is available for each concentration level
- The analysis of the five substances counts as one parameter

N-terminal adducts in human globin

(control material **13** A/B)

130 Globin adducts:	Methylvaline (MeV)
	2-Hydroxyethylvaline (HEV)
	2-Cyanoethylvaline (CEV)
	2-Carbamoylvaline (AAV)
	2-Hydroxypropylvaline (2-HPV)

Date: _____

Lab-ID (please do always quote!): _____

Signature and stamp: _____

Order form - additional material

Please note: We are not able to provide more than **2 vials of additional samples** for each control material due to reasons of capacity. We have to charge a fee 15.00 € for each vial you order.

In order to carry out the analysis we require more sample material.

I/We would like to order the following additional control materials:

Metals – Blood (3 ml):

(control material **1** A/B)

ZA1 A _____ x 15.00 €

ZB1 B _____ x 15.00 €

(control material **7** A/B)

ZA7 A _____ x 15.00 €

ZB7 B _____ x 15.00 €

Metals - Plasma (3 ml):

(control material **11** A/B)

ZA11 A _____ x 15.00 €

ZB11 B _____ x 15.00 €

Headspace Analyses - Blood

Aromatic hydrocarbons

(control material **4** A/B)

vial, 20 ml

ZA41 A _____ x 15.00 €

ZB41 B _____ x 15.00 €

vial, 10 ml

ZA42 A _____ x 15.00 €

ZB42 B _____ x 15.00 €

Date: _____

Lab-ID (please do always quote!): _____

Signature and stamp: _____

Headspace Analyses - Blood

Chlorinated hydrocarbons

(control material 5 A/B)

vial, 20 ml

ZA51 A _____ x 15.00 €

ZB51 B _____ x 15.00 €

vial, 10 ml

ZA52 A _____ x 15.00 €

ZB52 B _____ x 15.00 €

Headspace Analyses - Urine

Alcohols/Ketones/Ether

(control material 12 A/B)

vial, 20 ml

ZA01 A _____ x 15.00 €

ZB01 B _____ x 15.00 €

vial, 10 ml

ZA02 A _____ x 15.00 €

ZB02 B _____ x 15.00 €

Aromatic hydrocarbons

(control material 19 A/B)

vial, 20 ml

ZA182 A _____ x 15.00 €

ZB182 B _____ x 15.00 €

vial, 10 ml

ZA282 A _____ x 15.00 €

ZB282 B _____ x 15.00 €

Organohalogen compounds Serum (5 ml)

(control material 10 A/B)

ZA10 A _____ x 15.00 €

ZB10 B _____ x 15.00 €

Date: _____

Lab-ID (please do always quote!): _____

Signature and stamp: _____

Inorganic components - Urine (5 ml)

(control material **2** A/B)

ZA2 A _____ x 15.00 €

ZB2 B _____ x 15.00 €

(control material **8** A/B)

ZA8 A _____ x 15.00 €

ZB8 B _____ x 15.00 €

Organic Components - Urine (5 ml)

(control material **3** A/B)

ZA3 A _____ x 15.00 €

ZB3 B _____ x 15.00 €

(control material **9** A/B)

ZA9 A _____ x 15.00 €

ZB9 B _____ x 15.00 €

Tobacco-specific N-nitrosamines – urine

(control material **18** A/B)

ZA18 A _____ x 15.00 €

ZB18 B _____ x 15.00 €

Amines and Phenolic Components- Urine (5 ml)

(control material **14** A/B)

ZA14 A _____ x 15.00 €

ZB14 B _____ x 15.00 €

(control material **15** A/B)

ZA15

A _____ x 15.00 €

ZB15

B _____ x 15.00 €

Mercapturic acids - Urine (5 ml)

(control material **17** A/B)

ZA17 A _____ x 15.00 €

ZB17 B _____ x 15.00 €

Date: _____

Lab-ID (please do always quote!): _____

Signature and stamp: _____