



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 60 - 2017

Please order online until **1st September 2017**

or send this form until **1st September 2017** at the latest to:

Prof. Dr. med. H. Drexler

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

Schillerstr. 25

91054 Erlangen

Germany

Email: info@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 60 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)

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 (As ³⁺ , As ⁵⁺ , 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)
201	Germanium (Ge)
202	Tantal (Ta) – 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, **FPBA NEW!**)
- 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)

HEADSPACEANALYSIS

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, Methylketone (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: _____