

## Background and Training of Personnel

This document relates to

Background and Training of personnel of HBM Virginia LLC, Item C.1.b.

Martin Zimmermann.....	3
Position & Responsibilities .....	3
Background and Training .....	3
Joern Meissner, PhD .....	4
Position .....	4
Responsibilities .....	4
Background and Training .....	4
Syllabus for Radiation Safety Training at Herotron Technologies.....	6
Approved Trainers.....	6
Syllabus .....	6

## **Martin Zimmermann**

### ***Position & Responsibilities***

Managing Director, HBM Nevada LLC and HBM Virginia LLC  
Radiation Safety Officer, HBM Virginia LLC  
Corporate Sales & Marketing Manager, Zimmermann Group

### ***Background and Training***

1994-1995   Apprentice in Sales and Marketing, at Zimmermann BCS Stones GmbH from; Studied Gemology

1994-2000   Assistant to the Management, Customer Relations, Sales and Marketing;  
Worked outside of Germany in Customer relations in Thailand, Hong Kong, Taiwan, Sri Lanka, India, U.K., France, Italy, Spain, Bulgaria, Namibia, U.S.A and Canada.  
Represented BCS at many major Gem and Jewelry Fairs worldwide.

Since 2002   relocated to the USA to build the Gemstone analysis equipment required to measure Topaz stones,.

Since 2003   Founder and General Manager of HBM Nevada LLC  
Overview the construction of the above mentioned equipment for the Herotron Technology GmbH. The "Counting machine" was delivered to Herotron in 2005  
HBM further was involved in the purchase of stones for Herotron as well as Zimmermann BCS Stones for treatment, Sales and Calibration purposes.

July 2007   Completed formal radiation safety training at Herotron Technologies, Germany  
Course duration: 3days at 8 hours  
Syllabus: see below

## **Joern Meissner, PhD**

### ***Position***

Corporate Radiation Safety Responsible, Zimmermann Group  
Business development manager, Herotron, Germany  
Consultant to HBM Virginia LLC, USA  
Consultant to BCS Stones GmbH, Germany  
Founder and Managing Director of Meissner Consulting GmbH

### ***Responsibilities***

- Technical performance audit of Herotron high resolution gamma ray spectroscopy lab
- Internal QA program audit for Herotron
- QA program audit of subcontracted high resolution gamma ray spectroscopy labs
- Radiation safety representative for the NRC application of HBM Virginia LLC
- Corporate regulatory affairs including Herotron possession, use and transport license
- Training of radiation safety officers (current syllabus, see below)

### ***Background and Training***

Selected Accomplishments as Founder of Meissner Consulting GmbH (since 2001)

- Advised client on implementation of change management, configuration management and project management processes
- Lead successful FDA validation projects
- Implemented high resolution gamma ray spectroscopy laboratory at Herotron Technologies GmbH, Germany
- Radiation Safety responsible of Herotron Technologies

Selected Accomplishments at IBA (1996-2001)

- Defined production processes, their quality requirements and procedures
- Headed X-ray development for industrial processing
- Designed X-ray processing center currently used for US-Mail sanitation
- Headed department for radiation sterilization and radioisotope production facilities; lead R&D teams
- Participated in development of ISO/ASTM standards and FDA petitions
- Established and commissioned IBA's first X-ray processing center
- Established High Resolution gamma spectroscopy laboratory
- Performed radio activation research on medical devices and food products
- Radiation Safety Officer in Germany

#### Selected Activities during graduate studies (1991-1996)

- 5 year of high resolution gamma ray spectroscopy and low background measurements
- Detector development for nuclear physics for particles and photons
- Germanium detector calibration
- Construction of very low background counting system for high resolution gamma ray spectroscopy
- Monte Carlo simulation tool development for detector efficiency calibration
- Neutron activation analysis
- Proton activation analysis

#### Work History

##### Meissner Consulting GmbH (2001 -)

2001 – Geschäftsführer – Managing Director

##### IBA, Louvain-la-Neuve, Belgium (1996 - 2001)

2000 – 2001 Vice President, Facility & Process Engineering

1999 – 2000 Director, Facility & Process Engineering

1996 – 1999 Project Manager

##### University of Notre Dame, Indiana, USA (1991 – 1996)

1993 – 1996 Research Assistant

1992 – 1993 Teaching Assistant

1991 – 1992 Rotary International Fellow

##### Technische Universität München, Germany (1990 – 1991)

1990 – 1991 Teaching Assistant

spring 1990 Research Assistant

##### Messerschmitt-Bölkow-Blohm, Ottobrunn, Germany

fall 1988 Engineering Assistant

#### Education

October 1996 PhD, Nuclear Physics, University of Notre Dame, USA

May 1993 Diplom Physiker, Technische Universität München

January 1993 Master of Science, University of Notre Dame, USA

#### Memberships

- ISO TC 198 WG 2 (radiation sterilization)
- ASTM committee E10.01 (dosimetry and radiation applications)
- International Irradiation Association (iiA)
- Panel on Gamma and Electron Irradiation

# Syllabus for Radiation Safety Training at Herotron Technologies

## ***Approved Trainers***

- Yves Kaufhold, Erik Svendson: German Government approved Radiation Safety Officers; Herotron Technologies
- Dr Joern Meissner: German Government approved Radiation Safety Officers and Radiation Safety Responsible for Zimmerman Group; Managing Director of Meissner Consulting GmbH

## ***Syllabus based on IAEA recommendations***

### Basic radiation physics

- Radioactive decay
- Types of radiation
- radiation units and conversions
- Natural and occupational exposure
- Biological effects

### Radiation measurement methods

- gamma measurement
- beta measurement
- hands-on instrument training

### Radiation Safety Principles

- ALARA
- Importance of recurrent training, awareness and competence

### Introduction to gamma ray spectroscopy

- Basic operating principles of high resolution germanium detectors
- Operational limitations of Hi Res laboratory
- Basic operating principles of Na I detectors
- Operational limitations of Sorting Machine

### Gemstone specific training

- Typical activities and dose rates
- Shipping and transport regulations
- Isotopes of interest
- Product tracking and quality assurance practices

### Herotron site specific procedures

- Accelerator operation and maintenance
- Handling activated parts and products