



# Benzene line: equipment, laboratory SetUp and staff training

## Benzene Line Specification: List of Equipment

Synthesis Line for Chemical Preparation of Benzene for  $^{14}\text{C}$  measurement by Liquid Scintillation Counting (LSC) includes:

Description	Quantity
<b>Benzene Line</b>	
<b>1 Charring equipment</b>	
1.1. A vertical furnace (1100 watt, 220 volt, up to 1250 C )	1
1.2. Stainless steel reaction vessels with cover (3 small, 2 middle , 1 large and 1 perforated).	1
1.3. Thermo-destruction gas utilizing reactor.	1
1.4. A mounting for cooling and holding reaction vessels.	1
<b>2 The equipment for lithium carbide production of any kind of sample material</b>	
2.1. A vertical furnace (1100 watt, 220 volt, up to 1250 C )	2
2.2. An easily discountable water-cooled hermetized head	1
2.3. Stainless steel cylindrical reaction vessels (5 small , 8 middle and 2 large )	15
2.4. Titanium liners	10
2.5. Special metal stand with a holder for mounting a vacuum gauge with valves for vacuum, argon and carbon dioxide, with fast cooling system for reactor vessels and with seats for storing clean reactor vessels	1
2.6. Stainless steel holders ( 15 of different sizes ) and vacuum thermo-destruction technology	15
2.7. An auxiliary equipment.	1
<b>3. The equipment for lithium carbide production of carbon dioxide and charcoal</b>	
3.1. CO <sub>2</sub> carbide reaction vessels (5 reactors)	5
3.2. A holder for mounting a vacuum gauge with valves for vacuum, argon and carbon dioxide, with cryogenic-trap for carbon dioxide with quickly weigh system.	4
3.3. An auxiliary equipment.	1
<b>4. The equipment for acetylene production.</b>	

- 4.1 A lithium carbide hydrolysis module large 2
- 4.2. A lithium carbide hydrolysis module special for micro-samples 2
- 4.3. The equipment for chemical purification and catching of acetylene 1
- 4.4. The equipment for chemical purification and catching of acetylene, adopted for micro-samples. 1

## 5. The equipment for benzene synthesis.

- 5.1 Benzene synthesis system (2 modules). The one module consists of: two vacuum manifolds with gauges, Teflon valves, cryogenic traps, reaction vessel with catalyst, heater-cooler system with temperature controller/ 2
- 5.2 The glass benzene recovery vials with Teflon caps for refining and storage of benzene ( 70 vessels of different sizes ) 1

## 6. The equipment for benzene purification by sublimation.

- 6.1 One vacuum manifolds with gauges, Teflon valves, cryogenic traps. 1
- 6.2. System for fast remove of the Radon 1

## 7. Vials for long time precise measurement

- 7.1 - 1,5ml, 3ml., 7ml. All micro-vials consist of Teflon ampoule, titanium holder, titanium spring , Teflon cap with pin valve. 30

## 8. Sets of manuals in English 1

## 9. On-site installation of equipment and training to the end-user staff.

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