

WP3: COORDINATION OF ACTIONS FOR THE DEVELOPMENT OF A NETWORK FOR NUCLEAR TARGET PREPARATION AND CHARACTERIZATION

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Type of activity: Coordination

2 main objectives, 2 kind of work to be done

3.1 : Construct the basis of a network of installations dedicated to targets

Activity 1:
→ **Coordination of efforts, resources, access and networking**

3.2 : Test the proposed network structures

Activity 2:
→ **Development of reaction targets related to Domain C and required new equipment**

- TASK 3.1 – (CNRS)

Inventory of existing installations dedicated to target development and manufacturing

- TASK 3.2 – (JRC)

Current situation about the availability of radioactive isotopes

- TASK 3.3 – (CNRS)

Preparation of long lasting international nuclear data target network.

- TASK 3.4 – (JRC)

Identification of reaction targets to be prepared for Domain C and required new equipment


1st activity: coordination of efforts, resources, access and networking

- **TASK 3.1 - coordinator : CNRS**
- INVENTORY OF EXISTING INSTALLATIONS DEDICATED TO TARGET DEVELOPMENT AND MANUFACTURING**
- target laboratories facilities and their capabilities (at least in Europe)
- capabilities for characterization of stable and radioactive thin layers.

D3.1: month 12
“Report describing existing nuclear data target laboratories facilities and their capabilities”

SEVENTH FRAMEWORK PROGRAMME OF THE EUROPEAN ATOMIC ENERGY COMMUNITY

Nuclear Fission and Radiation Protection



Project acronym: CHANDA

Project full title: Solving Challenges in Nuclear Data for the Safety of European Nuclear Facilities

Grant Agreement no.: FP7 - Fission-2013 - 605203

Workpackage N°: **WP3**

Identification N°: **D3.1**


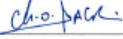
Type of document: **Deliverable Report**

Title: *Inventory of existing installations dedicated to target development and manufacturing.*

Dissemination Level: **PU**

Reference:

Status: **Final**

	Name	Partner	Date	Signature
written by:	Charles-Olivier Bacri	1	05.12.2014	
	Goedele Sibbens	6		
	Véronique Petitbon	23		
	Dorothea Schumann	16		
	Heikki Penttila	29		
	Klaus Eberhardt	6		
WP leader:	Charles-Olivier Bacri	6	05.12.2014	
IP Co-ordinator:	E. Gonzalez	1		

“Inventory of installations”

All installations, both Europe and International
Stables and radioactive targets

→ INTDS (International National Target Development Society) organization

Fabrication and characterization

Industrials suppliers of thin foils → see deliverable on isotopes

see TALISMAN network

(Transnational Access to Large Infrastructure for a Safe Management of ActiNide)

Difficulties related to the inventory

Most laboratories develop targets for their own needs

→ Almost no documentation on web sites

Not exhaustive list

→ To be regularly updated

- *Name and address of the laboratory*
- *Contact person (email and phone)*
- *When available: web site*

1st activity: coordination of efforts, resources, access and networking

TASK 3.2 - coordinator : JRC

CURRENT SITUATION ABOUT THE AVAILABILITY OF RADIOACTIVE ISOTOPES

- Inventory of radioactive isotope providers, including research laboratories.
- Related difficulties (knowledge of the purity , eventual contaminants of provided isotopes, ...)
- Identification of eventual lack of equipment related to isotope availability (transformation, separation ...)

D3.2: month 12


“Report on existing of radioactive isotope providers, capabilities and deficiencies ”



- Inventory of stable isotope and high purity material providers, including research laboratories.

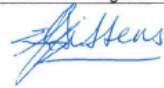
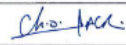
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Project acronym: CHANDA
 Project full title: Solving Challenges in Nuclear Data for the Safety of European Nuclear Facilities
 Grant Agreement no.: FP7 - Fission-2013 - 605203

Workpackage N°: **WP3**
 Identification N°: **D3.2**
 Type of document: **Deliverable Report**
 Title: **Current situation about the availability of radioactive isotopes.**
 Dissemination Level: **PU**
 Reference:
 Status: **Final**

	Name	Partner	Date	Signature
written by:	Goedele Sibbens	14	05.12.2014	
	Véronique Petitbon	6		
	Dorothea Schumann	23		
	Heikki Penttila	16		
	Klaus Eberhardt	29		
	Charles-Olivier Bacri	6		
WP leader:	Charles-Olivier Bacri	6	05.12.2014	
IP Co-ordinator:	E. Gonzalez	1		

“Availability of isotopes”

List of providers, both Europe and International
Stables and radioactive materials

Situation about availability of isotopes and/or materials not included

Related difficulties

Isotopic composition, contaminants and impurities

- Without certificate of analysis, need for installations of characterization
See installations listed in D3.1

Enrichment

- Required purity/enrichment not available, need for purification/enrichment
See installations listed in D3.1

- **Not exhaustive list**
 - To be regularly updated
- **Complementary to list of installations (see D3.1)**

- *Name and address of the society / laboratory*
- *Contact person (email and phone)*
- *When available: web site*

2nd activity: Development of reaction targets related to Domain C and required new equipment

■ TASK 3.4 - Coordinator : JRC

IDENTIFICATION OF REACTION TARGETS TO BE PREPARED FOR DOMAIN C AND REQUIRED NEW EQUIPMENT.

Evaluation of the target to be done in combination with Domain C

- Relevance of the target
- Possibilities of the facilities
- Role of the target in validating the new capabilities of the facilities

Identification of a new equipment required for the new targets production/characterization (280 k€)

- **D3.4: month 28 – report on the new equipment prepared for target fabrication/characterization**
- **D3.6 : month 36 – report on new targets fabricated**

2nd activity: Development of reaction targets related to Domain C and required new equipment

LIST OF REQUESTED (RADIOACTIVE) TARGETS (to any CHANDA laboratory)

	Thickness ($\mu\text{g}/\text{cm}^2$)	Spokelab.	Facility
Be-7	15 μg	CERN	n-TOF
	15 μg	SARAF	n-TOF
	15 μg	ILL	n-TOF
Be-10	100 μg	INFN	
	100 μg	Frankfurt	FRANZ
C-13	0,2 - 200	Manchester	n-TOF
Ti-44	10	Orsay	Orsay
Pm-147	1,5 mg	CERN	n-TOF
Tm-171	5 mg	CERN	n-TOF
W	2	Oslo	Oslo
Th-232	12	Uppsala	NFS

	Thickness ($\mu\text{g}/\text{cm}^2$)	Spokelab.	Facility
U-nat	15	Oslo	Oslo
U-235	~ 1000	Manchester	n-TOF
U-235	10	Uppsala	NFS
U-238	11	Uppsala	NFS
	250	IRMM	Orsay
		IRMM	nELBE
	15	Uppsala	JYU
Np-237	200	IRMM	VdG CEA-DIF
Pu-239		Göteborg Sweedeen	Budapest reactor
Pu-240	150-200	CENBG	Orsay
Pu-242	150-200	CENBG	Orsay
Cm-244	1000	JAEA	n-TOF
Cm-246	1000	JAEA	n-TOF

2nd activity: Development of reaction targets related to Domain C and required new equipment

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Requested targets in PAC

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2nd activity: Development of reaction targets related to Domain C and required new equipment

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Requested targets in PAC

Any choice of target does not mean that other targets will not be done !

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PROPOSED CHANDA TARGETS

- Still in discussion
- Needs more information (beam time, ...)

FUTURE OF THE WP3 (see presentation of Goedele Sibbens for the work to be done)

- C.-O.Bacri and V.Petitbon leave from CACAO (and IPNO)
- No clear indication about future implication of IPNO in WP3
 - **New CACAO contact for CHANDA:** Sylvie Delpech (delpech@inpo.in2p3.fr)
- Proposition: JRC/IRMM (G.Sibbens) becomes leader of the WP3
 - no more legitimacy for CNRS to continue to lead WP3
- **New CNRS contact person for CHANDA:** Maëlle Kerveno (maelle.kerveno@iphc.cnrs.fr)