



MULTIDIMENSIONAL INTEGRATED QUANTITATIVE APPROACH TO ASSESS SAFETY AND SUSTAINABILITY OF NANOMATERIALS IN REAL CASE LIFE CYCLE SCENARIOS USING NANOSPECIFIC IMPACT CATEGORIES

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6M General Assembly

17th - 18th June 2024

Minutes



Summary

The INTEGRANO 6M General Assembly was held at the Novotel Münster City and was organized by Dermatest GmbH.

The 6-month General Assembly was organized in hybrid format to enable the participation of participants both in presence and online.

The first day of the meeting was dedicated to updates related to activities within Work Packages (WPs) 1 and 2. The meeting commenced with welcomes from Marcel Voss (DRT) and Paride Mantecca (project coordinator, UNIMIB). The welcomes were followed by an update on project management issues, then each Case Study was given 10 minutes to update partners on activities and progress made, followed by a question-and-answer session. CENTI then led a session on WP2, centred on a discussion of upcoming activities within Task 2.3 NMs Characterisation program for selected NMs: size, morphology, p-chem properties (M7-M36).

The second day of the meeting opened with an update on Dissemination & Communication activities, followed by a session led by UNIMIB on recently initiated WP3 activities related to nano-eco-toxicity and nano-toxicity prior-data collection, and data collection campaigns. The following session was led by PRJ and provided an update to partners on the INTEGRANO Data Management Tool. The final presentations in day 2 related to WP's 1, 2 and 3 where the WP leaders were given 10 minutes to summarise the conclusions and actions to be taken in the subsequent interval until the 12-month General Assembly. The meeting closed with concluding remarks from Paride Mantecca and an open discussion session.

The agenda of the 2 days is annexed to this document.



Participants List

	Partner's company name	Surname	Name	In presence / Online	Participants day 1	Participants day 2
1	UNIMIB	Bengalli	Rossella Daniela	Online	YES	YES
1	UNIMIB	Gualtieri	Maurizio	Online	YES	YES
1	UNIMIB	Mantecca	Paride	In presence	YES	YES
1	UNIMIB	Marchetti	Sara	In presence	YES	YES
1	UNIMIB	Negrini	Beatrice	Online	YES	YES
1	UNIMIB	Bonfanti	Patrizia	Online	YES	YES
2	ARCHE	Eliat	Maxime	In presence	YES	YES
2	ARCHE	Koivisto	Joonas	Online	YES	YES
3	CeNTI	Monteiro	Andreia	In presence	YES	YES
3	CeNTI	Coelho	Lorena	Online	YES	YES
3	CeNTI	Oliveira	Juliana	In presence	YES	YES
4	CNR (IAS)	Garaventa	Francesca	Online	YES	YES
4	CNR (IAS)	Gambardella	Chiara	Online	YES	YES
4	CNR (IAS)	Costa	Elisa	Online	YES	YES
4	CNR (IAS)	Piazza	Veronica	Online	YES	YES
4	CNR (IAS)	Miroglio	Roberta	Online	YES	YES
4	CNR (IAS)	Nugnes	Roberta	Online	YES	YES
4	CNR (IAS)	Giuga	Marta	Online	YES	YES
4	CNR (IAS)	Castelli	Filippo	Online	YES	YES
4	CNR (IAS)	Zanetti	Lisa	Online	YES	YES
4	CNR (ISAC)	Nicosia	Alessia	Online	YES	YES
4	CNR (ISAC)	Ravegnani	Fabrizio	Online	YES	YES

	Partner's company name	Surname	Name	In presence / Online	Participants day 1	Participants day 2
4	CNR (ISSMC)	Costa	Anna Luisa	In presence	YES	YES
4	CNR (ISSMC)	Serantoni	Marina	In presence	YES	YES
4	CNR (ISSMC)	Zanoni	Ilaria	In presence	YES	YES
4	CNR_SCITEC	Boggioni	Laura	Online	YES	YES
4	CNR-ISMN Palermo	Deganello	Francesca	In presence	YES	YES
4	CNR-ISMN Palermo	Liotta	Leonarda Francesca	Online	YES	YES
4	CNR-ISMN Palermo	Aliotta	Chiara	Online	YES	YES
4	CNR-ISMN Palermo	Testa	Maria Luisa	Online	YES	YES
4	CNR-ISMN Palermo	La Parola	Valeria	Online	YES	YES
4	CNR-IPCB	Verdolotti	Letizia	Online	YES	YES
5	AITEX	Blanes	Maria	In presence	YES	YES
5	AITEX	Marco	Bruno	In presence	YES	YES
5	AITEX	Pascual	Carlos	Online	YES	YES
5	AITEX	Romero	Alicia	Online	YES	YES
5	AITEX	Gisbert	Maria José	Online	YES	YES
5	AITEX	Llopis	Jorge	Online	YES	YES
6	BIU	Dudchenko	Nataliia	In presence	YES	YES
6	BIU	Perlman	Yael	In presence	YES	YES
7	VERL	Hristova	Hristina	Online	YES	YES
7	VERL	Tashev	Todor	In presence	YES	YES

	Partner's company name	Surname	Name	In presence / Online	Participants day 1	Participants day 2
7	VERL	El Aouad	Noureddine	Online	YES	YES
8	UNITO	Nicola	Marco	In presence	YES	YES
8	UNITO	Garino	Claudio	Online	YES	YES
8	UNITO	Gobetto	Roberto	Online	YES	YES
9	PRJ	Perucca	Massimo	Online	YES	YES
9	PRJ	Truffa	Stefania	Online	YES	YES
9	PRJ	Murray	Benjamin Samuel	In presence	YES	YES
9	PRJ	Stopponi	Chiara	Online	YES	YES
10	ROV	Battistello	Vittoria	In presence	YES	YES
10	ROV	Genoese	Mariangela	In presence	YES	YES
11	B4C	Zahrtmann	Nanette	In presence	YES	YES
12	DRT	Tiemann	Janina	In presence	YES	YES
12	DRT	Michaelis	Annika	In presence	YES	YES
12	DRT	Voss	Marcel	In presence	YES	NO

Agenda

Location	Novotel Münster City VON STEUBEN STRASSE 4 - 6 48143 MUENSTER Germany https://all.accor.com/hotel/A219/index.de.shtml
Meeting Coordinator	Dermatest GmbH
Participants	University of Milano-Bicocca (UNIMIB), ARCHE Consulting (ARCHE), Centre for Nanotechnology and Smart Materials (CENTI), Consiglio Nazionale delle Ricerche (CNR), Asociación de Investigación de la Industria Textil (AITEX), Bar-Ilan University (BIU), Venus Roses Lab Solutions (VERL), University of Torino (UNITO), Project HUB-360 (PRJ), Red of View (ROV), B4Ceramics (B4C), Dermatest (DRT), Joint Research Centre (JRC).
Other info	

DAY #1

Monday 17th June 2024

Link for online participants: https://teams.microsoft.com/l/meetup-join/19%3ameeting_NIE5YTRiYiAtZDU5Ny00YwYzLTq2YwYyY2U0MzQ1ZWVzYzNh%40thread.v2/0?context=%7b%22Tid%22%3a%22f4589e5f-3308-4ee4-8b78-117af0a9d3f3%22%2c%22Oid%22%3a%22f30f6b10-06dd-4289-b870-88557ebf12ba%22%7d

13:00 – 14:00 Arrival and gathering

14:00 – 14:15	Welcome and meeting overview	Marcel Voss <i>Dermatest GmbH</i> Paride Mantecca <i>University of Milano-Bicocca</i>
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14:15 – 14:30	Project Management (WP7)	UNIMIB/PRJ
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WP1 & WP2 Case Studies Discussion

14:30 – 15:15	Case Study	Case Study 1	CNR-ISSMC	10
	Overviews – Specific Goals, Scope and Early Synthesis Results (WP1 + WP2)	Case Study 2	CNR-ISMN	10
		Case Study 3	CNR-IPCB & CNR-SCITEC	10
		Q&A	ALL	15

15:15 – 15:45 Coffee break

15:45 – 16:30	Case Study	Case Study 4	CNR-ISAC	10
	Overviews – Specific Goals, Scope and Early Synthesis Results (WP1 + WP2)	Case Study 5	BIU	10
		Case Study 6	ROV	10
		Q&A	ALL	15

16:30 – 17:30	Case Studies – Experimental Data Generation (WP2)	Overview of the characterisation work to be performed	CENTI	20
		Q&A and discussion session - establishing the p-chem characterisation programme.	ALL	40

19:30 Social dinner Restaurant
<https://www.muenster-ratskeller.de/>

[the cost will be borne by each participant]

DAY #2

Tuesday 18th June 2024

Link for online participants: https://teams.microsoft.com/join/19%3ameeting_NIE5YTRiYjAtZDU5Nv00YWYzLTg2YWYtY2U0MzQ1ZWVzYzNh%40thread.v2/0?context=%7b%22Tid%22%3a%2214589e5f-3308-4ee4-8b78-117af0a9d3f3%22%2c%22Oid%22%3a%22f30f6b10-06dd-4289-b870-88557ebf12ba%22%7d

08:45 – 09:00 Arrival and gathering

09:00 – 09:15 Welcome and introduction Paride Mantecca UNIMIB

09:15 – 09:30 Dissemination & Communication Activities (WP6) AITEX

Including a discussion on training activities for young researchers

WP3 Case Studies Discussion

09:30 – 10:30 Case Studies – Nano Tox environmental and Nano Eco-Tox Data Generation (WP3) Overview of the human and toxicity assessments to be performed. UNIMIB 20

Q&A and discussion session - establishing the toxicity assessment programme. ALL 40

10:30 – 11:00 Coffee break

11:00 – 11:45 INTEGRANO Decision Support Toolbox Implementation for NMs (WP1) PRJ

11:45 – 12:00 Data mining (WP2) PRJ

12:00 – 12:10 WP1 - conclusions and actions from day 1 CNR

12:10 – 12:20 WP2 - conclusions and actions from day 1 CENTI

12:20 – 12:30 WP3 - conclusions and actions from day 2 UNIMIB

12:30 – 13:30 Lunch

13:30 – 14:30 Free discussion and next actions in relation to the GANTT chart and closing remarks Paride Mantecca UNIMIB

DAY #1

Monday 17th June 2024

Welcome and introduction

Marcel Voss – Dermatest GmbH

Paride Mantecca – UNIMIB

During this short opening, a welcome was given by Marcel Voss, CEO of the host partner Dermatest GmbH, and the project coordinator, Paride Mantecca (UNIMIB). An overview of the focus of the General Assembly was made, moving beyond the definition of the case studies as per the last 6 months and moving into the characterisation stage of the project, with the establishment of the upcoming p-chem, functionality, nano-eco-tox and nano-tox campaigns.

Project Management (WP7)

Paride Mantecca – UNIMIB

Ben Murray – PRJ

Stefania Truffa – PRJ

During this 15-minute presentation updates were given on project management and consortium-related activities:

- Grant agreement amendment - the addition of the JRC as a beneficiary and the updating of associated tasks and deliverables.
- The INTEGRANO Expert Advisory Board (EAB).
- WP leaders – future reporting of WP tasks and progress (commencing at the next Executive Committee meeting).
- The venue of the 12-month INTEGRANO AGM.
- Keeping track of expenses and timesheets.
- Notice periods before dissemination/communication activities. 30 days indicated events with a large reach (television, radio at regional/national level), 10 days for other dissemination activities.

Case Study Overviews – Specific Goals, Scope and Early Synthesis Results (WP1 + WP2)

Ilaria Zanoni – CNR (ISSMC)

Nataliia Dudchenko – BIU

Francesca Deganello – CNR (ISMN)

Letizia Verdolotti – CNR (IPCB)

Alessia Nicosia – CNR (ISAC)

Mariangela Genoese – ROV

Each case study owner was allocated 10 minutes to report on the status of the Case Study including progress made since the kick-off meeting. In each case study, specific nanomaterials to be utilised have been identified and many of these have already been synthesised. Some p-chem characterisations have been made on these materials (including data from previous projects), and some materials have been incorporated to form NEPs.

BIU representative Nataliia Dudchenko reported on the status of Case Study 1.2 and Case Study 5. According to the GANTT chart of Case Study 1.2, BIU has already prepared ZnO- and CuO-impregnated fabrics and started to characterize fabrics and powders with p-chem methods available. The CuO nanoparticles are needle-shaped, and their average length is around 80 nm and the ZnO nanoparticles are leaf-shaped with an average size of about 300 nm. According to the SEM images, fabrics are tightly covered with nanoparticles. The nanoparticles are highly crystalline and pure phase, which was approved by XRD techniques. Finally, the content of Cu and Zn on the fabrics was determined by ICP. The samples are ready to be transferred for further investigations. According to the GANTT chart for Case Study 5, BIU has started the synthesis of C-dots using green precursors (Rosemary and Olive leaves). In the future, we plan also to use Aloe Vera leaves. The idea is to use green precursors with definite properties to ensure the same properties for synthesized Carbon Dots. For that, the hydrothermal synthesis at 180°C for 10 h was used and highly fluorescent Carbon Dots were obtained. Further p-chem characteristics will be updated. In the WP2 (Task 2.3 p-chem characterization of NMs) BIU will characterize synthesized NMs of outer Case Studies by TEM and for antibacterial properties.

Case Study Overviews – Experimental Data Generation (WP2)

Juliana Oliveira – CENTI

Ben Murray – PRJ

This session was used to present and discuss the forthcoming p-chem and functional characterisation programme related to Task 2.3 (M7-M36). The presentation covered the following key points:

- The range of NMs and NEPs under scope.
- The characterisation techniques available.
- The characterisations (p-chem and functional) chosen for each NM and NEP.
- A GANTT chart highlighting all the characterisation tasks to perform was presented, alongside a resource list of available p-chem and functional characterisation techniques.
- A discussion was then held regarding the capacity of the consortium to conduct the characterisations and to identify the areas of demand.

DAY #2

Tuesday 18th June 2024

Dissemination & Communication Activities (WP6)

Bruno Marco – AITEX

Ben Murray – PRJ

This session provided an update on activities underway/planned within WP6. The major areas of focus were:

- Dissemination activities – the requirement to notify the Project coordinator and D,C&E managers beforehand.
- The INTEGRANO website private area – availability to all partners as a resource for sharing of project information. Current groups include case studies, documents, communication.
- Stakeholders' mapping and identification. A document will be circulated to all partners to contribute to the task for identification of the stakeholders.
- The development of a website (SSbD community) where stakeholders can interact and engage, and which will provide webinars, training and workshops.
- The development of material for the SSbD community website.
- Synergies with other funded projects - sister projects and related calls.
- Development of Guidelines for integrative impact assessment and SSbD methodology application.

Case Studies – Nano Tox and Nano Eco-Tox Data Generation (WP3)

Maurizio Gualtieri – UNIMIB

Chiara Gambardella – CNR (IAS)

This presentation provided an update on work performed and planned within WP3. Major areas covered were:

- As summary of available p-chem and ecotoxicity data related to nAg and nTiO₂.
- Prediction of toxicity based on literature data.
- Collection of toxicity data and the filling of gaps for early identification of hazard potential.
- Definition of p-chem properties – are INTEGRANO particles the same as in previous projects.

INTEGRANO Decision Support Toolbox Implementation for NMs (WP1)

Massimo Perucca – PRJ

Ben Murray – PRJ

This presentation outlined updates to the INTEGRANO Data Management Tool which will be utilised to facilitate the planning and delivery of the Case Studies, including data sharing amongst partners, and will be the entry point for data collected during the project to be inputted into the INTEGRANO database. Key points:

- Enables the transformation of raw data into transparent and interoperable datasets. A tool to ensure INTEGRANO data is FAIR data.
- Ensures data traceability.
- Provides a route to ensure data completeness across the LCS.
- Allows for data uptake from other projects and established databases.

A presentation was also given outlining the approach and underpinning methodology to be utilised in the INTEGRANO Decision Support Toolbox. Examples of the approach were given through reference to earlier work performed with Ag NPs.

Data mining (WP2)

Ben Murray – PRJ

Due to an overrun in the session, a brief update covering activities performed so far in relation to Data Mining - Task 2.2 was unable to be given. The presentation will be made available via the INTEGRANO shared area.

WP3 - conclusions and actions from day 2

Maurizio Gualtieri – UNIMIB

A brief presentation was given outlining the conclusions and actions from WP3 activities discussed in Day 2:

- Aim for end-July-beginning of September to arrive with the completed dataset for each NM. Identification of correlation between p-chem and ecotox, human tox end points. This will then be shared with Case Study owners.
- Calls will be had with Case Study representatives who wish to discuss correlations
- If synthesis protocols are changed then, in general, the NM should be considered new due to the potential for final properties to change.
- If changes are observed, inform MG/UNIMIB
- NMs require a defined confidence interval
- Case Study owners should arrive with a clear idea of the life cycle of the nanomaterials they require ecotox and human tox data for.
- The potential within each life cycle stage under evaluation for where exposure can happen, to avoid unnecessary evaluation not consistent with the risks at each life cycle stage (example of asbestos given where when internalised within a hard matrix it is not considered a risk).

WP1 - conclusions and actions from day 1

Anna Costa – CNR (ISSMC)

A brief presentation was given outlining the conclusions and actions from WP1 activities discussed in Day 1:

- Presentation of the GANTT chart related to WP1 activities
- Data management tool
- Tools for the ordering and distribution logistics of NMs/NEPs samples – PRJ (next 3 months)
- Uploading of information to the Data Management Tool for the identification of material with a generated code and basic information before the distribution of samples – ALL (now).
- Case Study workflow, goal and scope to be finalised – focus on dimensions to be addressed – CS owners & PRJ (next 3 months).
- Provisions of instructions for registering of material batches and code generation – PRJ (next 3 months).

WP2 - conclusions and actions from day 1

Juliana Oliveira – CENTI

A brief presentation was given outlining the conclusions and actions from WP2 activities discussed in Day 1:

For NMs whose synthesis is fully optimised and that are fully characterised:

- Check if list of full characterisations is done
- Select characterisation to check batch reproducibility

For NMs whose synthesis is under optimisation:

- Select characterisation for intermediate materials ('go/no go)
- Full characterisation for the 'go' selected design alternatives

Further actions/points:

- Manage characterisation support between partners (shared resources)
- Protocol database
- Not generate data just for data sake! Define a TAILORED CHARACTERISATION.

Free discussion and next actions in relation to the GANTT chart and closing remarks

Paride Mantecca – UNIMIB

The project coordinator led the final session to conclude the meeting, summarise key points and open the floor for a free discussion.

- Good progress made in the first 6 months. Case studies defined – now need to go beyond to integrate these within subsequent activities within the project.
- Deliverables due within the next 3 months.
- The set of NM samples will be delivered by M24 – appropriate time should be devoted to their characterisation.
- A doodle will be circulated for the next Annual General Meeting – location still to be confirmed.

Meetings planning for the next 6 months

WHO	TOPIC	WHEN
Partners	Activities and planning	Frequency
Executive Committee	Executive Committee Meeting	11/09/2024
ALL	Annual General Meeting	January 2025