Plenary Meeting

Novamont, Novara, Italy
May 19, 2015

Meeting Minutes

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Project Contractual Details

Project Title:	"Quod erat demonstrandum: Large scale demonstration for the bio-based bulk chemicals BDO and IA amining at cost reduction and improved sustainability"
Project Acronym:	BIO-QED
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Project Start Date:	1 January 2014
Project End Date:	31 December 2017
Duration:	48 months
Supplementary notes:	
This document is only for use among the Partners of BIO-QED	

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Agenda

Time		Topic	Speaker / Moderator
9:30	9:35	Formalities: - Appointment of chairman/chairwomen, secretary and person to approve the minutes - Roll call of participants	Novamont
9:35	10:00	Welcome note from the Coordinator Report on the SC discussed topics to the consortium Report from the LCA workshop	Novamont
10:00		Presentation on the status of the different on-going Work Packages	
10:00	10:30	• WP2: status of the activities per task and progress against the achieved milestones	FhG
10:30	11:00	• WP3: status of the activities per task and progress against the achieved milestones	TNO
11:00	11:15	Coffee Break	
11:15	11:45	• WP4: status of the activities per task and progress against the achieved milestones	Materbio
11:45	12:15	• WP5: status of the activities per task and progress against the achieved milestones	Lubrizol
12:15	13:30	Lunch	
13:30	14:00	• WP6: status of the activities per task and progress against the achieved milestones	Novamont
14:00	14:30	• WP7: status of the activities per task and progress against the achieved milestones	NovaInstitut
14:30	15:00	• WP8	Novamont
15:00	15:30	Instructions for the first M18 financial reporting	Novamont
15:30	16:30	• Patentopolis workshop: programme and organization for the next day (20th May) • 1st stakeholder workshop in Brussels, 24th June 2015: programme of the event, organization, presentations • Next Meeting, Dates and Locations • Discussion about Next Operative Steps	Novamont
	16:30	End of the meeting	

List of Participants

Name of Organisation	Attendee (Surname, Name)
Novamont	Cecilia Giardi Maria Dani Francesco Razza Anna di Martino Gian Tomaso Masala
Lubrizol	
Mater-Biotech	Enrico Casareto
Cargill	Ruben Jolie
Miplast	Filip Miketa Danijel Miketa Luka Dobrovic
TNO	Carol Roa Engel Dirk Verdoes Nadine Wennersbusch Frank Vercanteren
FGH	Susanne Zibek Katja Patsch
Patentopolis	Arnaud Garsnier Luc Vandamme Roberto D'Erme
Rina	Felice Alfieri
NovaInsititut	Achim Rashka Kerstin Iffland
D'Appolonia	Elisabetta Noce Fabio Sagnelli

Presented Topics and Main Comments

Maria Dani (Novamont) welcomes all participants to the plenary session meeting and gives indications on the agenda of the day. She outlines that two presentations will be anticipated in the morning session (Instructions for the M18 financial reporting and WP8).

Cecilia Giardi (Novamont) reports on the **main outcomes from the STC meeting**.

Subject	*Decision during the STC meeting*
Candidate of IA value chain: Itaconix	The project coordinator is waiting for Itaconix administrative and financial information based on the request sent on the 6th of May. Submission of the required documentation from Itaconix is expected by week 21. Based on Itaconix request for having travel costs covered by the project, the coordinator will explore with the PO potential options if any.

Candidate of IA value chain: VLCI	The proposed starting for the activities of VLCI, 01/05/15, is approved by STC. The budget sent by VLCI which is higher than the one included in the Candidacy Dossier is approved by the STC members. However, a regular votation procedure according to the CA rules will be followed for the definitive approval of the proposed by budget by all General Assembly members. Moreover, once the proposed budget is approved, a technical meeting/conf-call among TNO, VLCI, Lubrizol and Novamont will be organized for the final agreement on the detailed definition of the technical activities to be developed by VLCI in the different tasks of WP5.
Candidate of IA value chain: SoliQz, EFC	Since both SoliQz and EFC have not provided the required information (no candidacy dossier available so far), it is agreed within the consortium that, due to the urgency of finalizing the pending amendment, this issue will be faced in a second phase after M18 periodic report submission.
Leader of IA value chain	Considering the major role played by TNO in the reinforcement of itaconic acid value chain, it is proposed that TNO becomes the leader of the itaconic acid value chain.
New proposal for additional dicarboxylic acid	Itaconix has accepted to develop the activities without receiving EU funds. Moreover, since the most promising microorganism for the fermentation of sugars towards the production of biobased itaconic acid belong to class 2 in most EU countries, it has been found obstacles in recruiting partner for the upscaling of the biobased production of IA beyond 10 m^3 of fermentation volume. This has led to a residual amount of economic resources available at project level. In reason of this, it is under evaluation the opportunity of reinforcing the current domains of biobased dicarboxylic acids production by extending the demonstration activities to the biobased production of other di-carboxylic acids such as FDCA, apart from itaconic acid in relation to the huge interest for this compound in the EU market and of the promising results achieved within the BioConcept project. This will bring to the development of an additional value chain that can be valuable for Bio-QED in order to enlarge the portfolio of demonstrated biobased dicarboxylic acids production. Moreover, the value chain can be developed without the involvement of additional partners external to the consortium and thanks to the involvement of the following Bio-QED partners: Novamont, TNO and FhG. Due to the urgency of finalizing the pending amendment, it is agreed within the STC members that this issue will be faced in a second phase after

	M18 periodic report submission.
Financial Status	It is highlighted that some potential deviations may occur on WP2 and WP3 (underspending trend against the planned use of resources). These data will be compared with the upcoming M18 financial reporting in order to have final figures taking into account also the last 6 months of project development and the updated figures on MMs distribution based on the last amendment request (reallocation of MMs for Lubrizol and Cargill).
IPR Management	It is confirmed by the STC members not to sign a new Intellectual Management Agreement beyond the already signed Consortium Agreement.
Next Consortium and Review Meeting	A plan for the next consortium meetings is agreed with the STC members and will be communicated in WP8 presentation. Final decision by PO on the next review meeting will be communicated to partners. A first proposal is to hold the review meeting the day before or the day after the Bio-QED workshop in Brussels. Technical and financial templates for the M18 periodic report will be delivered to all partners in the first week of June. Deadline for sending inputs to the PC will be discussed in WP8 presentation.
Dissemination	It is agreed that there is an urgent need to revise the agenda in order to plan more specific speeches and check the targeted audience. In particular, it is agreed that during the plenary session, it will be asked to NovaInstitut to provide additional details both on the organization and on the targeted audience. Based on it, it will be asked to NovaInstitut to include a reference for the Bio-QED event within the BioTIC webpage reporting information on the BioTIC event in order to give more visibility to the Bio-QED event. Based on the defined targeted audience, each partner participating as speaker to the Bio-QED event will be asked to provide a title for its intervention and to promote the event through its channels beyond the ones that will be used by NovaInstitut.
Deadlines	Reminder will be communicated to all partners during the plenary meeting in order to ensure the submission of the deliverables by the expected deadline

Elisabetta Noce (D'Appolonia) presents the **instructions for the M18 financial reporting**.
The first BIO-QED reporting period will end on 30 June 2015; the Periodic report and Forms C from each Beneficiary and linked third party must be submitted by the project coordinator within 60 days (end of August). Moreover, certificate on Financial Statement (Form D) must be submitted together with Form C if the Total Requested EC contribution is higher than 375.000 €.
Deliverables planned until Month 18 in the Annex 1 to be submitted on the EC website.
The individual financial statement must detail the eligible costs for each budget category.
A new tool, named EXTRA, will be used for the collection of the project expenditures in order to ease the financial reporting at project level. Mrs. Noce shows in detail how the tools works. Details are

provided in the presentation enclosed to the present minutes. The EXTRA Tool is a software tool developed by D'Appolonia on the basis of the EC financial guidelines
The EXTRA tool is used to:

- keep track of the project expenditures of each Beneficiary and its Third Party(ies);
- prepare the Financial Statement (Form C) to be provided to the European Commission at the end of each official reporting period;
- facilitate the preparation of the Periodic Reports requested by the Contract;
- prepare the efforts\financial reports for the Steering Committee
- identify possible problems as soon as possible.

The EXTRA tool is based on an Excel file containing the following worksheets:

- "PMs" sheet, for the Person Months spent during the period
- "Costs" sheet, related to all the costs incurred at WP level
- "Form C" sheet, for the official reporting to the Commission

Each Beneficiary and their linked Third Parties will receive a personalized file for each accounting period - the file shows only the Work Packages where the Beneficiary is involved in.
Beneficiaries are required to fill in:

- At the end of each Accounting Period to fill in "PMs" and "Costs" sheets
- At the end of each official Reporting Period, they are also required to complete the "Form C" sheet

Cells containing data provided in the previous accounting periods are unlocked and can be updated, if necessary. Each sheet is explained to partners in detail through examples.
Form C sheet is an exact copy of the official Financial Statement Form which will be sent by the Coordinator to the Commission at the end of each Reporting Period to claim all project Beneficiaries' expenses.
The Form C will have to be submitted in Electronic version (via Participant Portal, on a tool called FORCE). FORCE is used by project consortiums (Coordinator and Beneficiaries) to declare their costs. FORCE has been created to make the process of declaring consortium costs easier and less error prone with stricter checks on the values entered and the ability for a Project Officer to request corrections to Form Cs.
Beneficiaries will have to include costs and the related explanations.
According to the new regime of Electronic-only transmission and signature of Financial Statements (Form C) and of certificates (Forms D) applies to FP7 grants signed after 1.1.2013, organizations have to identify online the persons authorised to sign Forms C
For this, a new role, the Financial Statement Authorised Signatory (FSIGN), is introduced in the Participant Portal
The following steps have to be followed:

- Identification / Nomination of a LEAR
- LEAR nominates the FSIGNs
- Participant Contact chooses the FSIGN for the project

Each Beneficiary shall contact the LEAR and ask to assign the Financial signatories

Instructions for the nominee of the participant contacts and FSIGN are reported in the presentation. Moreover, Mrs. Noce shows the current situation for the nominee of the participant contact and FSIGN within the BioQed consortium:

num	short name	Participant Contact	FSIGN
1	NOVAMONT	OK	OK
2	LUBRIZOL	Missing	Missing
4	MATERBIO	OK	Missing
5	CARGILL	OK	OK
6	MIPLAST	Missing	Missing
7	TNO	OK	OK
8	FHG	OK	OK

9	Patentopolis	OK	Missing
10	RINA	OK	Missing
11	NOVAINST	OK	Missing

Mrs. Noce invites each Beneficiary to finalize the described steps in the Participant Portal in short time to be able to fulfill the deadline with the EC.

Moreover, Mrs. Noce explains how to fill in the explanation of the use of resources in the EXTRA Tool with the aim of having a word file that can be easily used for the compilation of the form C with the FORCE tool of EC.

Mrs. Giardi presents **WP8**. An update of the amendment status is provided to all partners.
The following items have already been agreed within the consortium and included in the amendment draft:

- Inclusion of Cargill Third Party (Cargill s.r.l.)
- Redistribution of MMs allocated for Lubrizol on the different WPs
- Addition of D3.8 Pre-validation of the purification and separation methodology for the subsequent polymerization at small scale (up to 50 Lt) and suggestions for tuning the previous process steps based on the achieved results (Lubrizol, M24) and D4.5 (Cargill, M36) Production and delivery of first generation sugars for the 1 to 80 m3 scale production

The project officer has requested to prepare a single amendment including the following modifications to the previous Grant Agreement, beyond the aforementioned modifications:

- Inclusion of Itaconix as partner of the consortium without EU funding – for which the project coordinator is waiting for administrative information and budget from Itaconix
- Inclusion of VLCI as new partner of BioQed for which all administrative information have been collected and budget will be submitted to the approval of General Assembly via e-mail procedure

All these modifications have been **informally** approved by the PO via e-mail (06/05/15). The formal amendment will be sent to the PO once all info from new partners will be made available.
Deliverables submitted in the period M1-M17 are shown. Three deliverables are expected by M18 (D7.4, 7.9 and 8.1). Intermediate deadlines and final beneficiaries are reported in the table below. It is agree that also for D7.4 the structure of the deliverable will be prepared in due advance before the workshop of the 24th of June in order to be ready for the submission by the end of June.

Lead Beneficiary Delivery Date to WP Leader	WP Leader Delivery Date to Coordinator	Del. No.	Deliverable Name	WP No.	WP Leader	Lead Beneficiary
25 May 2015	8 June 2015	7.4	Halfway stakeholder workshop done, report and participants list of first workshop	7	NOVAINST	NOVAINST
25 May 2015	8 June 2015	7.9	IP Strategy Set-up	7	NOVAINST	PATENTOPOLIS
26 May 2015	9 June 2015	8.1	Draft Plan for the Use and Dissemination of Foreground and periodic updates	8	NOVAMONT	PATENTOPOLIS

Results from the M12 intermediate financial reporting are shown by Mrs. Giardi. In particular, it is highlighted that some potential deviations may occur on WP2 and WP3 (underspending trend against the planned use of resources). These figures will be compared with the upcoming M18 financial reporting figures in order to take into account also the last 6 months of project development and the updated figures on MMs distribution based on the last amendment request (reallocation of MMs for Lubrizol and Cargill).

Concerning the upcoming M18 periodic report, Mrs. Giardi outlines that periodic report template (technical template) for collecting the activities description in the reference period (M1-M18) will be distributed by the project coordinator to WP leaders in the 1st week of June 2015. Each partner will be required to send info back to WP leaders on the 30th June 2015. **The deadline for WP leaders to send the info to the project coordinator is fixed at 15/7/2015.**
The financial report template for collecting the information on the costs claimed by partners for carrying out the Bioqed activities within the reporting period will be delivered to all partners in the 1st week of June 2015 using the EXTRA Tool. Deadline for sending information to the project coordinator will be fixed two weeks after the end of the reporting period.
The review meeting with the project officer will be organized at M18 (possible location Brussels and possible date might be the day before or the day after the BioQed Workshop of the 24th of June).
A request to the Project Officer for the agreement on date and location has already been sent by the Project Coordinator which is currently waiting for the PO answer. The agenda of the review meeting will be drafted in cooperation with WP leaders and sent to the project officer. Based on the agenda that will be defined, the project coordinator will invite the involved partners. If the PO is not available for the review meeting in June or July in alignment with the deadline reported in the Grant Agreement, it might be postponed to September.
The table for next consortium meeting locations and dates agreed during the STC meeting is reported to all partners of the plenary session.

Next consortium meetings	Suggested location / hosting partner
1,2 December 2015	Cargill
6,7 June 2016	Rina
30 November, 1 December 2016	Lubrizol
6,7 June 2017	Miplast
14,15 November 2017 + Final Event	Brussels

The two open demo events (one in Bottrighe and one in Leuna) will be organized in 2017.

WP2 presentation is led by Suzanne Zibek (FhG) in quality of WP leader at 10:40. Feedstock delivery plan for 1st (Cargill) and 2nd generation sugars are reported in the presentation. 200 kg (for 100% Glucose calculated) and 450 kg (for 100% Glucose calculated) of second generation sugars will be respectively delivered by FhG for fermentation tests in 2015 and 2016. Mrs. Dani asks FhG if it is possible to have a second generation sugars syrup from wheat straw due tot he promising results shown from this feedstock. Mrs. Zibek will verify the straw availability at FhG's premises and provide an answer by the end of June 2015.
The following amounts of by products from 1st generation feedstock has been delivered by Cargill in M17 to FhG and Novamont for fermentation tests (data shown by Mr Ruben Jolie from Cargill):

Type	Amount (in kg c.b.)		Delivery date
	To Novamont	To Fraunhofer	
High dextrose syrup (benchmark)	150 (+ 150)	15	M14 (+ M19)
Regular dextrose greens	300	20	M17
Upgraded dextrose greens[1]	10	15	M17
Wheat C-starch[2]	-	40	M17

Results from model E.coli fermentation on this 1st generation feedstock are shown by Mr. Jolie.

Activities carried out within sub Task 2.1.1 in M13-M17 have been presented by Mrs. Maria Dani (Novamont) and summarized below:

- A modified fermentation process has been set up and validated at 1 L scale using pure dextrose
- Fermentations process have been verified at 1 L scale using 1st generation sugars (benchmark, Cargill)
- Fermentations with 2nd generation sugars have been carried out by FhG

The subtask level of completion is estimated around 80%. In the upcoming period (M18-M24) fermentations with 1st and 2nd gen. sugars and by-products as available using modified process will be carried out and the process will be scaled up to 100 L of fermentation volume. Fermentation tests have been carried out by Novamont in fed-batch mode, varying fermentation volume and optimizing process parameters. The following results have been obtained for the different feedstock:

- Increased BDO production (+20%) with modified fermentation process using pure laboratory dextrose
- Slightly higher titer compared to pure dextrose and same yield has been obtained using 1st gen sugars from Cargill (C*Sweet D02761)
- Titer and productivity of 94% compared to 1st generation benchmark have been obtained using 2nd gen sugars produced by FhG from beech wood. It has been detected a presence of cellobiose that may reduce the yield of the downstream/purification process. It is agreed with FhG to test new pretreatment protocols for reducing the presence of this compound within the sugars pool from beach wood.

Concerning sub-task 2.1.2 Mrs. Dani outlines that different process conditions have been evaluated: volume, amount of continuous cells recovery, addition of fresh medium or limiting components, dextrose feeding profile. The following feedstock quantity have been received by Novamont in 2015:

- 120 kg of C*Sweet D02761 in 12 buckets of 10 kg each
- 300 kg of “regular dextrose greens” (C*Sweet D15080) in 30 buckets of 10 kg each.
- 10 kg of “upgraded dextrose greens” (non-commercial) in 2 buckets of 5 kg each.
- 5 kg of 2nd generation sugars from beech wood

Fermentation broth with BDO was sent to TNO (10 L). The task completion is around 10%. Fermentation runs in semi- and continuous mode will be carried out in the upcoming period.

Task 2.2 is presented by FhG (Mrs. Katja Patzsch).
Toxicity tests have been led in shaking flasks by FhG. The following results have been obtained:

- No toxic effects have been detected using A. niger #99
- Toxic effect with complex feedstock have been detected using A. terreus NRRL1990
- Higher IA production have been obtained using A. terreus if growth takes place (not successful with complex feedstock)
- Beech wood hydrolysates lead to enhanced IA production with A. niger

Several fermentation in 10-L and 100-L scale with glucose, HDS and beech wood hydrolysate have been carried out. Results are shown in the presentation enclosed to the present document.
Using standard glucose, 100 Lt fermentations have led to better results in comparison with 10 Lt due to a better control of process parameters and the positive effect of the stirring conditions in 100 Lt.
The problem that has to be solved in the 100 Lt is related to the removal of biomass. Moreover, 20 lt of fermentation broth (2x 5Lt and 1 x 10 Lt) have been delivered to TNO for downstreatm tests.
Using regular dextrose supplied by Cargill, 10 Lt fermentations have led to better results in comparison with 100 Lt. This has been linked to the age of age of spores in the pre-culture that could influence the productivity. Currently laboratory tests are on-going.
Second generation sugars have been tested in 10 Lt fermentation run showing that high viscosity of fermentation broth may negatively affect the oxygen distribution in the broth.

Plan for next steps includes the following activities:

- Fermentation of *A. terreus* with 1st gen. feedstock- M24
- Fermentation with 1st gen. sugar in 100-L-scale and subsequent delivery of fermentation broth to TNO- M18
- Dose-response-curves with *A. terreus* (influence of by-products from lignocellulose treatment → Acetat, Fufural, HMF)- M18
- Solving the filtration problems of fermentation broth (ongoing)
- Study the effect of age of the spores suspension (pre-culture) on fermentation (ongoing)

WP3 is presented by Carol Roa Engel (TNO).
Concerning subtask 3.1.1 (Separation of BDO from fermentation broth), results from tests for the separation of BDO through Solvent extraction with TOPO & eutectic melt crystallization are shown. It is outlined that BDO-TOPO partition coefficients are low, which means that the extraction of BDO by TOPO will produce a low BDO concentration in this solvent.
Results from preliminary tests have shown that it is difficult to recover BDO by solvent melt crystallization. However, this technology might be useful to remove water in the BDO production chain.
To combine solvent extraction with melt crystallization, TOPO and DBSO are the best solvent choices for this system. Further DBSO-BDO crystallization have to be evaluated.
Recovery of BDO by ethylacetate is another alternative. Here BDO will be extracted from ethylacetate by evaporation (option to be evaluated).
Maria Dani presents the activities carried out by Novamont in WP3 with the support of Materbiotech. In particular a pilot unit for cell separation from BDO containing broth has been defined and will be tested in the upcoming period in order to compare this process in combination with membrane against the conventional centrifugation.
Moreover, Mrs. Engel presents the activities carried out in subtask 3.2.1 and 3.2.2 for the recovery and purification of itaconic acid. In particular, IA acid recovery by freeze crystallization has been validated in a 3 L crystallizer in batch and continuous mode.
A first experiment in continuous mode has revealed some criticalities. Indeed, when trying to reach steady state, IA crystals were being attached to the glass surface of the crystallizer. It was then necessary to add $CaCl_2$ to decrease eutectic point and reduce the melting circuit flow to solve this problem. The overall yield of these experiments was lower than the one obtained in batch mode (50 %wt compared to 80 %wt). This was due to the fact that the crystallizer was having poor mixing and a lot of IA crystals were staying in the bottom avoiding full crystals recovery. A baffle was installed at the bottom of the crystallizer but still poor mixing was occurring. These problems did not allow to get into continuous mode, then semi-continuous mode was used. Crystals size were not good big enough to apply as next step for purification solvent switch (size required: at least 200 µm)
Thus a second experiment has been led by optimizing the systems and mainly the mixing conditions. System was running stable with good mixing. Set up was running continuously up to 8 hours and samples are still being analyzed.
Concerning the purification of IA, this process will be led in 2 steps (cooling crystallization and solvent switch). A proof of concept (7 lt volume) has been realized based on TNO technology.
In the nest period, IA purification by cooling crystallization will be run continuously. Solvent switch technology for IA final purification step has to be tested.
Mrs. Engel proposes to organize two separate meetings (one for BDO and for IA) in order to discuss potential optimization strategies of the processes towards the obtaining of high purity monomers.

Mrs. Anna Di Martino (Mater-Biotech) presents the activities carried out in **WP4**. In particular for task 4.1, 4.2 and 4.3 she outlines that the Upstream plant at Bottrighe site is currently under construction and that commissioning activities will be started in August 2015.
Downstream civil works have been 50% completed and packages installation will be started in October 2015 together with commissioning activities. It can be thus estimated that re-engineering and reconversion of Bottrighe site is around 45% completed.
Concerning task 4.4, Mrs. Di Martino outlines that in the reference period (M13-M17), a double stage biodigestion test for the production of biogas from recovered cells from BDO fermentation broth has been led by Materbiotech. In particular, the main idea is to compare the double stage biodigestion process against the conventional single stage biodigestion process where hydrolysis and methanization occur in the same reactor.
Results obtained in the double stage configuration were not satisfactory (steady state conditions not reached); this was probably due to the substrate inhibition/toxicity related to high nitrogen content.
Mrs. Di Martino outlines the conditions of applicability of the double stage and of the single stage process, by identifying the main scenarios that make one process more convenient than the other, underlining that the best option is related to the substrate conditions and specific techno-economic evaluations.

In the next period, the following activities will be carried out:

- Complete commissioning of the upstream plant and start commissioning of downstream plant.
- Test of single-stage anaerobic digestion (pilot scale) to treat the cellular residue coming from BDO production process.
- Selection of the best technology and definition of AD process.

WP5 is presented by Mrs. Cecilia Giardi on behalf of Lubrizol which is not present at the consortium meeting. Lubrizol has prepared the presentation and sent it to Mrs. Giardi.
Concerning task 5.1, Lubrizol has received 10 kg of bio-based BDO, on May 12th.A chemical characterization (assay, impurities, metallic contaminants etc…) will be carried out thanks to Lubrizol Measurement Science department in Brecksville (OH, US).
Synthesis of adipate polyester polyol based on Bio-BDO, Lubrizol will target 5-10 Kg of PBA Mw 2000 using lab scale equipment and will complete the full characterization (Mw, MWD, acidity, Hydroxyl number and color) and comparative again equivalent petro base.
Synthesis of an aromatic TPU in the lab., using Bio-BDO as "chain-extender" and Polyester obtained in previous item, Lubrizol will target 85-87° ShA TPU using a lab scale equipment (batch system of approx. 2 Kg per batch) and will complete full characterization (Mw, MWD, density, mechanical and rheological properties, DSC, weatherability).
Concerning task 5.2, Lubrizol Reception has received 0,2 kg of bio-based IA (arrived on May, 8th). Chemical characterization will be performed thanks to Lubrizol Measurement Science department in Brecksville (OH, US). The biobased IA will be tested for the synthesis of WB acrylic co-polymer. Once produced, the polymer will be characterixed (conversion, MW, MWD, color, mechanical and rheological properties etc…) and the end use performance tested.
Evaluation of partial replacement of AA and MAA by IA and its esters (contingent upon economic case) will be evaluated.
Concerning task 5.3 (Emulsion polymerization of Acrylic esters and IA (latex production)), Mrs. Giardi presents the main objectives of the task and of the expected activities. TNO introduces an innovative process that is intended to be tested in this task in order to evaluate the feasibility of developing a thermo-reversible coating through polyitaconic acid modification.
With the entrance in the consortium of VLCI, TNO proposes thus to extend the activities in WP5 by validating the use of an IA based (co)polymer in a self-emulsifying latex –. This work can be done in close cooperation with VLCi and Lubrizol as already discussed in telco with both partner. However if other partners are interested in this application, they can propose activities to be added within this task.
Objectives and activities to be carried out in task 5.4 and 5.5 are presented by Mrs. Giardi and reported in the enclosed presentation.

WP6 is presented by Mr. Francesco Razza (Novamont), based on the activities carried out in the reference period and reported to participating partners in the LCA workshop of the 18th May hold in Cologne.
In particular, Mr. Razza outlines that the following activities have been carried out by Novainstitut (responsible for Techno-economic evaluation) and Novamont (responsible partner for LCA assessment):

- Questionnaire for inventory data collection have been prepared and distributed to partners
- LCA/TEE-workshop has been jointly prepared
- Literature research about LCA applied to bio-refineries has been led and will be integrated with additional inputs in the next future
- Literature research on biomass and 2°generation of sugars production has been led and will be integrated with additional inputs in the next future
- Preliminary LCA of IA from 1st generation sugars "Cradle to gate" has been carried out by Novamont
- LCA of biomass "Cradle to gate" has been carried out by Novamont

Preliminary results on the LCA of IA production from 1st generation sugars have shown that:

- The production and use of fertilizers are responsible for 2/3 of the GHG emissions for maize production

- Energy inputs (electricity and heat) are the major causes of GHG emissions for 1° generation sugar and IA production
- The energy recovery of the biomass derived from IA process, through AD, could result a no valuable option (2-3%). Further investigations are needed.

Preliminary results on the LCA of second generation biomass (wood and straw) have been shown. In particular, the preliminary results have outlined that biomass yield for wood is about twofold higher than straw and that there is a high variability of the environmental profile for straw. This may be related to the following reasons: source of data, crop practices, geographic area, used approach for assessing the environmental profile (e.g. allocation, type of allocation, system expansion).
In order to refine and consolidate the input data necessary for carrying out both LCA and TEE, specific requests will be addressed by Novamont and NovaInstitut to partners.
Novamont and NovaInstitut will send the template to all partners within the missing information and the already completed ones in order to ask validation for the already provided data and integration of the missing ones. If requested, it has been agreed that NDA with interested partners will be signed.
FhG outlines that data for the pretreatment and fractionation process of second generation biomass are available on a report already published in literature sent by FHG to Novamont and Nova Institut (to be translated from German to English).

WP7 presentation is led by Achim Raschka and Kerstin Iffland by NovaInstitut.
Progress on the dissemination activities is shown.
Website has been updated (both internal and public site), leaflet has been finalized and 2000 copies have been printed and distributed to partners.The leaflet has already been distributed at the 8th International Conference on Bio-based Materials and the Deutsche Biotechnologie Tage (both in April 2015).
Concerning the programme of the halfway stakeholder workshop, an open discussion takes place.
The workshop will be organized in the framework of the BioTIC event. Mrs. Giardi (Novamont) specifies that there is an urgent need to revise the agenda in order to plan proper interventions based on the targeted audience. Mr. Raschka outlines that BIOTIC project is mainly addressed to lobbying organizations, Brussels, with the aim of defining three strategic roadmaps in Europe for the biobased economy: technical, non technical and marked oriented roadmap. It is commonly agreed that the Bio-QED workshop can be included as a case study of this event, by highlighting the aforementioned three issues for biobased BDO and IA production. Speeches should reflect this concept. In particular, it is agreed that a general presentation of the project will be hold by Novamont. FhG will take care of a technical presentation on the exploitation of second generation biomass towards the mobilization of ferementable sugars for IA production and TNO of downstream technologies for separation and purification of biobased monomers. Mater-Biotech can be involved in presenting the demonstration activities for the biobased BDO production at large scale. NovaInstitut for presenting the results of market analysis carried out within task 6.1 (D6.1). MiPlast and/or Lubrizol will be involved for presenting the specific end of use/applications of the targeted monomers.It will be evaluated if RINA can have a presentation on the needs for standardization/certification process. NovaInstitut will ask Dirk Carrez as executive director of BIC to chair the workshop. A relevant speech from EU Institutions will be also planned in order to enforce the connection of EU view on biobased economy. Each partners is asked to send a title for the intervention latest by the end of the week (23th May) in order to publish the final agenda and start delivering it to each partners' distribution channel. NovaInstitut will distribute the agenda to all participants registered to the BioTIC conference. It is asked to NovaInstitut to include a reference for the BioQed event within the BioTIC webpage reporting information on the BioTIC event in order to give more visibility to the BioQed event. Based on the defined targeted audience, each partner participating as speaker to the BioQed event will be asked to provide a title for its intervention and to promote the event through its channels beyond the ones that will be used by NovaInstitut.

Mr. Felice Alfieri (RINA) presents the activities carried out in the relevant period on the standardization/certification of the biobased products.
In particular, an analysis of the CEN (European Commettee for Standardization) activities has been carried out with specific reference to:

- CEN/TC 411 Bio-based products

- CEN/TC 249 - Plastics

The CEN/TC 411 includes 5 WGs:

- WG 1 Terminology
- WG 2 Bio-solvents
- WG 3 Bio-based content
- WG 4 Sustainability criteria, life cycle analysis and related issues
- WG 5 Certification and declaration tools

Concerning the biobased content, methods to determine the biobased contents have already been published. It is still under approval the technical specifications defining standards for the determination of the biobased content as well as the end of life options and LCA analysis.
Moreover sustainability criteria (environmental, social and economic) are also being elaborated by this Committee and are under approval phase. Concerning the biobased plastics, the correspondent committee (CEN/TC 249) has published the following document/sheets:

- CEN/TS 16137:2011 Plastics - Determination of bio-based carbon content Published
- CEN/TS 16295:2012 Plastics - Declaration of the bio-based carbon content Published
- CEN/TS 16398:2012 Plastics - Template for reporting and communication of bio-based carbon content and recovery options of biopolymers and bioplastics

In the next period, Mr. Alfieri presents the working methodology that will be followed.
In particular, a gap analysis will be carried out in order to highlight potential needs for new standards. The outcomes from preliminary gap analysis will be reported in a draft reported that will be delivered in November 2015.
This report will be discussed within the consortium and a consolidated gap analysis taking into account feedback and needs from industrial partners will be delivered in February 2016.
Based on this, a proposal for new standards preparation will be elaborated and submitted to CEN for discussion.

Mr. Arnaud Gasnier shortly presents the activities carried out by Patentopolis with reference to exploitation and IP management. These issues will be faced in detail in the IP workshop of the 20th of May. Feedback from MiPlast and Novamont after the consolidation meeting has been collected and taken into account. Intellectual Property Management guidelines have been provided to all partners for comments. All partners have agreed not to sign IP management agreement beyond the already signed CA ; thus Patentopolis will be asked to provide guidelines for managing the IP during the project development in order to have some advices and strategies on how to solve critical issues.
In particular Cargill has highlighted that Section 8 of the CA and Art II.26 of the GA are covering how the IP should be handled. However, what is more critical is to define what is “own” and what is “joint” ownership. Thus, it is suggested to monitor Partners’ actions with IP session at each General Meeting, identifying what foreground results have been generated by individual partners or have been jointly developed. Mr. Arnaud presents the programme of the workshop for the subsequent day.