

Meeting Minutes 03 2018

To: Mitjan Kalin

From: Muhammad Shahid Arshad

Date: 03 April 2018

Time: 09:00 a.m. to 16:00 p.m.

Venue: Coimbra

Subject: 6 months project meeting

09.00-09:35	Opening
09:35-12:45	<p>IPN</p> <ul style="list-style-type: none"> - They have produced W-DLC coatings with usual PVD method and send them to TINT, they will provide W-DLC produced by HiPIMS method in near future. - Characterization of the DLC films were discussed and they will send short report on characteristics of the coatings such as adhesion, hardness, and roughness and SEM with composition to TINT and NTNU. <p>TINT</p> <ul style="list-style-type: none"> - For coating with HiPIMS, disc samples were sent to IPN to be coated with W-DLC, i.e. 64 samples in total. For neutron reflectometry, the thickness of the coatings should be 40-70 nm and the surface roughness should be in the $R_a=2-3$ nm. Thus, in order to perform preliminary experiments wafers were sent to IPN to be coated with W-DLC with PVD. - 5 additives were purchased: <ol style="list-style-type: none"> 1. <i>1,3-dimethylimidazolium dimethylphosphate</i> 2. <i>Tributylmethylphosphonium dimethylphosphate</i> 3. <i>(2-hydroxyethyl) trimethylammonium dimethylphosphate</i> 4. <i>1-butyl-1-methylpyrrolidinium tris(pentafluoroethyl) trifluorophosphate [BMP] [FAP]</i> 5. <i>ZDDP</i> - A high oleic sunflower oil (HOSO) as a base oil was selected and we mixed it with 1wt% ionic liquid (<i>Tributylmethylphosphonium dimethylphosphate</i>) to perform tests for the stability and solubility. Some promising results were obtained but need further confirmation and repeatability tests. We have also testing other base oils like mineral oils and glycerol. For solubility/stability test we are implementing turbidimetry and high power sonication devices. - It was discussed that HOSO has difficulty in FTIR measurements as it shows similar chemical signature as ionic liquids. It is difficult to go to XPS for every

	<p>experiments. Thus we need to think more in detail regarding base oil, we need to look into literature more in details as well.</p> <ul style="list-style-type: none"> - We have prepared project proposal for the neutron reflectometry and submitted to PSI. - We need to send the details of the ionic liquids to Nuria.
	<p>NTNU</p> <ul style="list-style-type: none"> - They have purchased necessary equipment for preliminary tests, - They will receive samples from IPN - Nuria suggested to have polar base oils like glycerol as ionic liquids are highly polar.
	<p>WP9 & WP10: Management and Dissemination</p> <p>Summary of agreed Actions</p>
<p>14:00-16:00</p>	<p>IPN</p> <ul style="list-style-type: none"> - Website is up and running. - Next 6th months meeting will be organized at NTNU on 23 Nov 2018. More details will be spread via emails
	<p>TINT</p> <ul style="list-style-type: none"> - TINT suggested to have google calendar to manage stuff in more systematic way. - 6 months reports will be prepared and submit to TINT. No need for particular template and formality regarding 6 months template, however, all consortium members should check with local administration.