24th Annual ETRA Conference

The Sponsors

The European Tyre Recycling Association is the *only* European organisation devoted *exclusively* to tyre and rubber recycling. Membership includes both the public and private sectors involved in the environmentally sound management and valorisation of post-consumer tyres. Policy and decision makers as well as those charged with organising and connecting the links in the valorisation chain are represented.

With a focus on material recycling, ETRA members include those who process tyres into standardised materials or use them in an expanding array of applications and products. Support industries including collectors, equipment manufacturers, research and training institutions, product developers, governments, NGOs, investors etc., are also members

As the tyre recycling industry has matured, ETRA, its Board and members have worked with material users, research bodies and and an array of industries to develop innovative new technologies, materials, products and applications to meet the needs of current and evolving markets. In recent years, the focus has included not only new or first level secondary raw materials – but a series of recyclates. The range of these products is beginning to expand under the new Circular Economy parameters.

Since 2013 ETRA has cooperated with many organisations to introduce and train new professional audiences and familiarise them with the range of benefits that can accrue from recycled tyre materials, products and applications. In 2014 ETRA joined forces with ANTEL Italy to offer training for municipal engineers via annual day-long seminars. Other States are now interested.

2015 introduced a new programme with ASTM, which in 2017 is initiating a new ASTM committee on Recycled Carbon Black (D36) during the ETRA Conference. Also in 2017, EIT will make its debut. These relationships are helping to broaden the base of professionals who use, develop, exploit and recommend recycled tyre materials.

Recognised by the European Commission and Parliament, ETRA assisted in the Recycling Forum and dialogues on the Thematic Strategy for the prevention and recycling of waste and was a speaker at the Parliamentary hearings on Waste Management Policy in 2006, 2008 and 2016. ETRA contributed to the UNEP) Basel Convention 'Guidelines for the identification and management of used tyres' and participates in missions for UNEP and UNOPS.

ETRA works closely with member companies, industries and affiliated organisations to develop innovative concepts into viable, commercialisable projects. Participation takes many forms, from management and operations, to the development of technologies, materials, products and applications. ETRA, Vice Presidents and members are currently participating in a number of projects supported under EU funding schemes. New projects are being developed for funding under Horizon 2020, PIC, EIT and others.

NETWORKING and DEVELOPMENT

A European thrust towards sustainability and resource efficiency through the Circular Economy, increasingly focuses on contributions attainable from expanded and improved material recycling. The results are evident in the cost-effectiveness, reduced carbon emissions and energy use, as well as the enhanced performance of output materials. Recent innovations have led to a vast expansion of the variety of materials and products available, and the sectors that can benefit from these performant and sustainable materials

Today, the most basic recycling treatments provide viable outputs of all three of the principal material groups : rubber, steel and textiles. More sophisticated, multi-treatment processing has begun to result in materials that can effectively replace a broad range of virgin resources required by diverse markets.

ETRA works closely with three key industry sectors to assess material requirements, products and applications that are currently used in order to identify others which could be potentially produced from recycled tyre outputs. With a product inventory in hand, product descriptions and use-mapping options are being prepared for circulation to potential manufactuers and users.

In 2014 ETRA launched an effort to expand opportunities for member companies to network with a range of new sectors. The ***Industry to Industry – Business to Business*** programme is providing opportunities to expand awareness and exposure to recycled tyre materials. The initial sectors involved in the programme were : Surface Transport, Sports and Leisure Infrastructure Management, and Alternative Materials, with an on-going focus on Pyrolysis. The response from potential users has been very positive.

In 2016 the initiative expanded to highlight new and ongoing relationships with support programmes and professional organisations. These efforts include the EU EASME, ERMCO, ASTM, ReMine, Elastopole (France), EIT, ANTEL, among others. New organisational relationships have also been formed in Egypt, Ghana, India, Indonesia and Israel, among others.

The Conference programme consists of topical plenary sessions and focused discussions on particular issues impacting the sector, e.g., sbr infill, interpreting the Circular economy package, and identifying new markets. The programme objectives are to offer updated information about the activities of the sector today, within and outside the EU ; to provide opportunities for colleagues to meet and to network in informal settings ; to stiumulate exchanges of experience and expertise ; and to explore prospects to work together in a variety of research, development, commercial and sectoral activities. We look forward to receiving your feedback about the programme, speakers and activities. Please feel free to contact us during and after the Conference to contribute your input.

ASTM INTERNATIONAL

Wednesday 22 March 2017

New Committee : D36 Recovered Carbon Black (rCB)

ASTM International, known until 2001 as the American Society for Testing and Materials (ASTM), is an international standards organization that develops and publishes voluntary consensus technical standards for a wide range of materials, products, systems, and services. Some 12,575 ASTM voluntary consensus standards operate globally. ASTM, founded in 1898 as the American Section of the International Association for Testing and Materials, predates other standards organizations such as BSI (1901), DIN (1917), ANSI (1918) and AFNOR (1926). ETRA has had the pleasure to work in partnership with ASTM International since 2015 and is pleased to announce this session to introduce the new Committee, D36 Recovered Carbon Black.

08.30 **ASTM Registration Begins**

10.00 **Call to order**

Welcome and Housekeeping Items from D36 Chairman

10.15 **Meeting of SubCommittee D36.10 Recovered Carbon Black**

Evaluating / Revising Current Carbon Black Standards used in the industry

- Structure
- Surface areas and related properties
- Nomenclature
- Pellet properties
- Test Methods and pellet hardness
- Statistical Analysis
- Testing Rubber
- Microscopy and Morphology

12.00 **Break**

13.00 **Meeting of Subcommittee D36.20 Other Recovered Materials**

Discussion on developing standards in the followng areas :

- Focused materials (Oil, Steel, Gas)
- Nomenclature
- Current Carbon Black Feedstock-related Standards
- Current Rubber-related Standards
- Current Plastic-related Standards
- Current Eneergy/Fuel-related Standards

14.00 **Adjournment**

24th Annual ETRA Conference

Wednesday 22 March 2017

10.00	**Delegate Registration begins**
12.00	**Set-up Displays**
14.00	**Welcome and Introduction of Ghanan special delegates**
	Welcome and introduction to Indonesian partners
16.00	**ETRA General Assembly Meeting (Members only)**
	Welcome and Introduction of ETRA Members
18.45	**End of GAM Meeting**
19.00	**Cocktail Reception**
19.30	**Gala Dinner**

Key Circular Economy Initiatives for 2017

The 2017 Commission Work Programme confirms the full commitment to ensure the timely implementation of the Circular Economy Action Plan. In 2017, the Commission will propose a Plastic Strategy to improve the economics, quality and uptake of recycling and reuse, to reduce leakage in the environment and to decouple production from fossil fuels.

The Commission will also put forward a detailed analysis of the legal, technical or practical problems at the interface of chemical, product and waste legislation that may hinder the transition of recycled materials into the productive economy. In particular the Commission will consider options to improve information about substances of concern in products and waste, and options to facilitate the management of substances of concern found in recycled materials. The objective is not only to promote non-toxic material cycles, but also to enhance the uptake of secondary raw materials.

The Commission will also come forward with a legislative proposal on minimum quality requirements to promote the safe reuse of treated waste water, while ensuring the health and environmental safety of water reuse practices and free trade of food products in the EU.

The monitoring framework assessing the progress of the circular economy in the EU and its Member States will also be presented in 2017.

In 2017, the implementation of the Ecodesign working plan will have an increased focus on circular economy and resource efficiency beyond energy efficiency.

The Commission will also publish the Fitness Check on EU Ecolabel and EMAS in the first quarter of 2017.

2017 will be a crucial year to develop a policy dialogue with stakeholders

24th Annual ETRA Conference

Programme

THURSDAY 23 March 2017

08.30 **Registration and Welcome coffee**

09.00 Introduction and Opening Comments — Dr. Valerie L. Shulman

The 24th ETRA Conference focuses on the evolving role of the expanding tyre recycling industries within the Circular Economy. Presenters and discussants will have an opportunity to highlight some of the steps that will be necessary during the transition period. Key issues, opportunities and potential pitfalls will be presented and discussed including : the need for accurate, transparent means of assessing arisings and identifying new valorisation routes ; responding to ECHA concerns ; options for producing and maintaining commercially viable state-of-the-art materials and applications as well identifying some of the emerging opportunities towards new markets in construction and civil engineering.

The Programme is designed to stimulate discussion on where we are today and how we can make a transition to the Circular Economy. The sessions will be presented in three parts. ***Part 1 : The Tyre Recycling Context*** to establish the parameters for the circular economy ; ***Part II : State of the Art Materials and Applications*** presenting a range of Innovative materials, products and applications ; ***Part III : Company Matchmaking with EEN*** European Enterprise Network, will bring together companies in prearranged meetings with potential business, technology and research partners

Valerie L. Shulman, Ph.D., served as Secretary General of ETRA for more than twenty years. She began to study tyre recycling in the EU in 1989 and developed the Tyre Recycling Project in 1992 which, after initial EU funding, became the nucleus of ETRA. A contributor to the preparation and presentation of the Basel Convention Guidelines on used tyres, she participated in the EU Recycling Forum representating Tyre Recycling. In 2006 she presented at the Waste Policy hearings in Parliament and again in 2008 on the needs of recyclers in a recycling society. She represents European tyre recycling at EU and international conferences. She has published more than 100 articles in EU and international journals, and written or edited more than ten books on the subject. She has been a delegate in both UNEP and UNOPS on-site missions.

09.15 Keynote : The Circular Economy — Jose Jorge Diaz del-Castillo, EU

Jose Jorge Diaz del Castillo of DG Environment, was born in La Laguna (Tenerife) where he completed his Law University degree. Later, in 1990, he successfully completed an LL.M (Masters in Law) at the University of Wales College of Cardiff in the UK. In 1992, he continued his studies in European and International Law at the University of Louvain-La-Neuve in Belgium. In 1994, he joined the Euro-pean Commission and is currently responsible for the implementation and technical development of the Waste Framework Directive. He ensures that Member States meet the relevant legal requirements in waste management under the on-going EU Cohesion Policy finan-cing period (2014-2020). He represented the Commission at the discussions held at the Basel Convention working group in charge of the revision of the technical guidelines for the environmentally sound management of used and waste pneumatic tyres, adopted in 2011. Lately, he was in charge of the recently adopted Commission's communication on the role of waste-to-energy in the circular economy.

09.45 **Questions and Discussion**

10.00 The Circular Economy Package

The Circular Economy package was adopted on 2nd December 2015, consisting of an EU Action Plan and legislative proposals on waste. It is setting the resource efficiency agenda of the Commission for the next years. The package includes legislative proposals on waste and long-term targets to increase recycling and reuse. It also includes an

Action Plan to support each step of the value chain. Key deliverables for 2017 projected and integrated industrial best practices and green public procurement routes as well as new initiatives in construction, roads and other sectors.

The proposed actions will contribute to 'closing the loop' of product lifecycles through greater recycling and re-use, and bring benefits for both the environment and the economy. The plans will extract the maximum value and use from all raw materials, products and waste, fostering energy savings and reducing Green House emissions. The proposals cover the full lifecycle of products : from production and consumption to waste management and the market for secondary raw materials. This transition will be supported financially for the European Structural and Investment Funds (ESIF), which include €5.5 billion for waste management. In addition, support will be provided by €650 million under Horizon 2020 (the funding programme for research and innovation) and investments in the circular economy at national level.

The presentations will provide an overview of the Circular Economy and its potential impact on the tyre recycling sector – and the support package especially from the perspective of industrial policy and EU competitiveness. The discussions will explore the elements of the supporting package.

10.00 **Opportunities for SMEs** **Anna-Natasa Asik, EASME**

10.20 **Key Elements of the Package** **Ferran Rosa, ZeroWaste Europe**

10.35 **Potential Impacts and Suggestions for Improvement** **Mathieu Rama, RReuse, Brussels**

The actions in the Circular Economy will contribute to 'closing the loop' of product lifecycles through greater recycling and re-use, and bring benefits for both the environment and the economy. The plans will extract the maximum value and use from all raw materials, products and waste, fostering energy savings and reducing Green House emissions and stimulating the economy. The proposals cover the full lifecycle of products : from production and consumption to waste management and the market for secondary raw materials. This transition will be supported financially for the European Structural and Investment Funds (ESIF), which include €5.5 billion for waste management. In addition, support will be provided by €650 million under Horizon 2020 (the funding programme for research and innovation) and investments in the circular economy at national level.

The panel presentations will highlight the specific elements of the package and discuss some of the positive and less positive potential impacts on different sectors. The opportunities available to SMEs will be a crucial point of discussion for the tyre recycling sector.

Anna-Nastasa Asik joined the Executive Agency for Small and Medium-sized Enterprises (EASME) of the European Commission in April 2016. She works as project adviser in the unit that manages the LIFE programme, the EU's funding instrument entirely dedicated to the environment and climate action. Her portfolio focuses on waste and circular economy projects. Previous to her assignment in EASME she worked for the DG Research, European Commission and the European Parliament. She holds an MA in European Studies from the Free University of Brussels.

Ferran Rosa is currently the Waste Policy Officer at Zero Waste Europe. After earning his Masters degree in European Studies from the Université Libre de Bruxelle, he joined the Zero Waste Europe's team in September 2014 and in May 2015 he was named Waste Policy Officer. He has previously worked for the European Commission, for the Green European Foundation, and for the environmental NGO GOB Mallorca.

Mathieu Rama has been a Policy and Project Officer for three years for different NGOs and networks active in the field of waste management : Surfrider Foundation Europe, ACR+ and RREUSE. Those experiences made him follow closely the so-called Circular Economy Package, proposal made by the European Commission to update the European legislation on waste. His current position as a Policy Offi-cer of RREUSE (Re-use and Recycling European Union Social Enterprises) allows him to foresee not only the environnemental impacts of the implementation of a Circular Economy, and the implication of such an economic model for people at risk of socio-economic exclusion.

10.45 **Questions and Discussion**

11.00 **Coffee break**

Part I : The Tyre Recycling Context

Panel 1 : Setting the Stage for the Circular Economy

11.15 **The Starting Point** **Ewan Scott, Tyres and Recycling Magazine, UK**

11.35 **Quantifying EU ELT arisings** **Simon Hodson, Astutus Research, UK**

12.05 **Impact on Tyre Recycling** **Dott. Ettore Musacchi, ETRA**

The session will begin with an overview of the tyre recycling sector today, exploring some of the challenges confronted in establishing the sector in the EU, highlighting some of the successes and points that require reworking in order to move ahead. It will then focus on one of the most crucial elements demanding revision and stability - the accurate quantification of data on annual arisings and existing valorisation routes. These data are imperative to the flow of materials in and out of the system in order to ensure sufficient tyre availablity to meet valorisation commitments. Discussions will focus on how management bodies have developed systems that reflect national patterns of use and disposal, and how they are working to expand markets for reycled tyre materials (RTMs).

12.15 Questions and Discussion

Simon Hodson is Director of Analysis at Astutus Research, an automotive-focused provider of business information. He has lead respon-sibility for coordinating the research and analysis program across the tyre and aftermarket segments which encom-passes competitive intelligence, market sizing and segmentation, pricing and channel analysis. Previous roles include Publishing Director at Progressive Media International and 15 years within the automotive business unit at Datamonitor, rising to Research and Analysis Director. He holds a BSc. and MSc. in Economics from the London School of Economics.

Ewan Scott is Editor of 'Tyre and Rubber Recycling', Europe's leading publication dedicated to tyre and rubber recycling since its launch six years ago. He has been editor of 'Retreading Business' for the past ten years. He has written about the tyre industry for 20 years and has a broad understanding of the sector. Interest in ELT recycling was inspired by attending an ETRA Conference in Cambridge (UK) 13 years ago. Since then he has developed a broad spectrum of knowledge about the sector and has interviewed participants from collec-tors, through producers, to representatives of tyre management agencies in several EU countries. He believes that the tyre recycling sector has an important role to play in leading the waste sector towards a sustainable solution to handling difficult waste-streams.

Dott. Ettore Musacchi has been involved in tyre recycling for over 20 years, during which time he set up and developed many industrial projects. He is a member of the CEN Committee on Tyre Recycling and of the Ministry of Health Commission on Artificial Turf. He has been Managing Director of AD.RI.A. Abruzzo s.r.l., an SME in the centre of Italy, dealing with the recycling of used tyres. Before that, he worked banking for 9 years, where he assumed different tasks in various departments, including 4 years in the foreign exchange department, after which he worked as a Certified Accountant. Further, he developed considerable technical skill and experience because he managed the development and production of several new products. He is the President of the Consortium ARGO, the Italian Association of tyre recyclers, which represents its members with the public administration, promoting relevant issues impacting tyre recycling. In 2005 he became the President of ETRA (European Tyre Recycling Assn).

12.30 LUNCH

Panel 2 : The Issue of SBR

13.45	**Ongoing Research Support for SBR**	**Geom. Bruno Marabotto, City of Turin, Italy**
14.05	**The Situation in Spain**	**Ir. Andreu Gelpi Salat, GMN, Spain**
14.25	**ETRA Committee on SBR**	**Ir. Marcin Ostachowski, Tebamix, Poland**
14.45	**Era of Disruption**	**Denise Kennedy, DKEnterprises, USA**
15.05	**Updating U.S. Studies on Tire Granulate**	**Michael Blumenthal, Mashay, USA**
15.25	**Update on ECHA's SBR investigation in the EU**	**Salome Cisnal de Ugarte, Cromwell & Moring**
15.45	**ECHA evaluation : Main findings whether recycled rubber granules causes risks to human health**	**Kirsi Sihvonen, ECHA Risk Management Implementation**
16.05	**Question and Discussion**	

In recent years, municipal authorities and NGOs increased their investments in providing sports and leisure facilities and public spaces to serve broader population bases in urban as well as suburban communities within the EU. In fact, the use of recycled granulate and small shred became the largest single market for recycled tyre materials. However, by 2015, the expansion had slowed to a trickle due to yet another 'scare' about the use of recycled tyre granulate as infill material in synthetic turf. However, on 28 February 2017, most of that fear was laid to rest when the Annex XV Report was published by ECHA : An evaluation of the possible health risks of recycled rubber granules used as infill in synthetic turf sports fields.'

This session will discuss some of the concerns that were raised over time regarding SBR as infill material, and the reasons why they no longer appear to be a threat. The presentations will focus on key issues and misconceptions and will address some of the uncertainties and recommendations included in the report.

Geom. Bruno Marabotto has worked since 1982 in the Sports Plant branch of the Turino Town Council. Today, he is

responsible for the design and construction of sports fields. From 2001 to 2003 he took care of the maintenance of city stadium (delle alpi). In 2002 he developed a plan to transform 30 clay sports surfaces with artificial turf. He recently transformed the Winter Olympic Stadium into a football stadium for the two local clubs: Turin and Juventus. The municipality has been Awarded as the European Capital of Sports for 2015. He initiated a municipality-wide programme to revise and renew older sports fields to meet update requirements and standards.

Ir. Andreu Gelpi Salat has been involved in tyre and plastics recycling throughout his career (more than 15 years). He is currently General Manager of GM, in Llieda, Spain. GMN (Gestión Medioambiental de Neumáticos) was founded in 2001, and today is a pioneer in obtaining recycling solutions due to its stance on rubber processing technology and development research. It is a subsidiary of COMSA Corporación, one of the main Spanish groups for infrastructures, engineering, the environment and technol-ogy. GMN is one of the few companies in Spain that integrates all the activities related to the management of end-of-life tyres; from their collection through to the sale of the recycled products. He has been involved in several EU funded projects, particularly those involving new products and applications for the urban environment Eco-track was funded under eco-innovation to develop anti-noise and vibration products for urban railways.

Denise Kennedy, founder and president of DKE Enterprises, Inc. has over 28 years experience in tire recycling and the tire derived product (TDP) industry. She is an official of ASTM International and the Synthetic Turf Council and will highlight the volatility of the sector. In 2015 DK E was awarded the California Department of Resources Recycling and Recovery Feedstock Conver-sion Technical Assistance and Material Testing Services (FCS) Contract DRR14019. Since 2006, she has also played a key role within the contractor teams for CalRecycle's Tire Derived Product Business Assistance Program and the Tire Outreach and Market Analysis Project. She has served as principal industry liaison, analyzing scrap tire flows and identifying market trends, barriers and opportunities and has been passionate in assisting clients in utilizing best management practices in the development of products utilizing tire rubber and other raw materials.

Michael Blumenthal, President of Marshay, Inc., a scrap tire consulting firm, has been involved in the tire industry since 1985, retiring in 2014. Employed by the Rubber Manufacturers Association, the national trade association representing U.S. based tire manufacturers, he led the RMA efforts to expand viable markets for scrap tires. These efforts included the preparation of market studies, coordinating conferences on all the major end use markets and developing industry-wide information sources. He began his involvement in the industry in 1985 when he was hired by Oxford Energy, one of the first dedicated tire-to-energy companies.

Ir. Marcin Ostachowski completed his studies at Cracow University of Technology, Department: Faculty of Chemical Engineering and Technology, Field of study: chemical technology, major: polymer technology, degree: Master of Science, Engineer. He is a technologist at ZBP „TEBAMIX" Sp. z.o.o (Poland). His main area of work includes the development of rubber compounds and the technology used in tyre recycling sector. He is familiar with the REACH procedures related to the rubber industry. He participated in the SMART project and is currently involved in the ECLIPSE project - both with other ETRA members.

Dr. Salome Cisnal de Ugarte, LL.M. is a partner in the Brussels office of Crowell & Moring. She focuses on EU law, with particular emphasis on antitrust and competition and regulatory affairs. She works on all areas of competition law, such as mergers, compliance, cartels, and State aid, and is widely recognized for her capabilities handling vertical issues in retail distribution and online commerce of goods, as well as for her expertise in product regulatory issues. A graduate of Deusto University (Law/Econ), Harvard University (LLM) and the European University Institute EUI (PhD), She is widely recognized by leading directories and received the 2013 EU Competition Lawyer of the Year ILO Client Choice Award.

Kirsi Sihvonen is a Scientific Officer in the Risk Management Implementation Unit of European Chemicals Agency. She is responsible for many restriction related tasks. She was responsible for the Agency's evaluation of the human health risks related to recycled rubber granules. Before joining ECHA in 2008 she has worked on chemicals management at the Finnish Competent Authority and the Ministry of Social Affairs and Health in Finland. She holds an MSc. in Environmental Sciences from the University of Kuopio, Finland.

16.10 Coffee Break

Part II : State-of-the Art Materials and Products

Panel 3 : Pyrolysis — Dr. Gisele Jung, Dr. Elsa Weiss, Co-Chair

16.15	**Opening comments Tyre pyrolysis: evaluation of the actual performance**	
16.25	**Pilot scale rotary kiln pyrolysis products**	**Prof. Anastasia Zabaniotou, Aristotle Univ., Greece**
16.40	**Commercialization of pyrolysis carbon black**	**Ir. Elizabeth Gustafsson, Ir. Maria Tellblom, SES, Sweden**
16.55	**Tire pyrolysis: from Trial-&-Error to systematic approach**	**Ir. François Terrade, PRO2ACT, France**
17.10	**Recovered carbon black / carbon black: Twins not identical**	**Dr. Pieter ter Haar, Carbon Clean, Tech, NL**

17.25	**rCB - a unique material**	**Dr. Chris Norris, ARTIS, UK**
17.40	**Black Bear developments for industrial and commercial plants**	**Ir. Clara Song, Black Bear, NL**
17.55	**Mining tyre -Thermal Conversion**	**Scott Farnham, KalTire, CA**
18.10	**Round Table discussion**	**The Panel**

The session will present updated developments and new perspectives in the field of tyre thermal treatment valorisation with a special focus on the value of the end products. Characterisation of the issued products is of main importance to determine their potential use in several applications. Markets for these products being of major importance in the present economic situation will also be discussed.

Opening comments will emphasize the importance of the following criteria:

- operating parameters in pyrolysis processes (from pilot to industrial scale)
- r-CB characteristics : need of standards - new ASTM sub-committee D36
- applications and markets for the pyrolysis end-products.

The presentations will be followed by a round table animated by the co-chairs including all the speakers to evocate and discuss the content of the presentations based on the enounced criteria .

Dr. C. Gisèle JUNG, PhD in Chemistry, is Senior Researcher at the "*Centre Emile Bernheim"* of the Solvay Brussels School of Economy and Management and in the Faculty of Applied Sciences, "*4MAT"* department, at Université Libre de Bruxelles (ULB). Her research in-terests are related to general problems concerning material and energy valorisation of (carbon containing) waste. She works in research programmes for the scientific development of carbon products issued of solid waste thermal treatments for the valorisation of the end-products with respect of the economic, social and environmental aspects. She is lecturer in international Universities, author of more than 85 articles, active speaker in Conferences, referee for articles and consultant as expert to promote pyrolysis/gasification for specific solid waste. Her research is oriented towards the evaluation of existing thermal processes of specific carbon containing waste with the objective to characterise technically (ASTM standards) the issued end-products (r-CB) to be used for specific and economical viable applications.

Dr. Elsa Weiss, PhD in the field of Chemical Engineering and Environment at Toulouse University (2006), is Assistant professor at Ecole des Mines d'Albi-Carmaux (from 2007) and working in the field of biomass and waste valorisation. Her domain of research is based on the use of thermochemical routes (wet and dry) to convert biomass and waste (composite, black liquor, tires, MSW) into energetic vectors and/or useful materials. She is focusing her research on the characterization of carbonaceous solid (using advanced techniques) and on its functionalization.

Dr. Anastasia Zabaniotou holds a Ph.D. and DEA from Ecole Centrale des Arts et Manufactures de Paris (FR). She is Professor at the Chemical Engineering Dept. of Engineering of Aristotle University of Thessalonika (GR) and vice president of RMEI (Network of Mediter-ranean Engineering Schools on Sustainable Development). She is AUTh's coordinator of T.I.M.E (Network of the Top Engineering Schools for Top Managers, coordinated by Ecole Centrale de Paris) and founder member of the AUTH's Center for gender, Space, Envi-ronment, Technology. She worked in the European Commission, DG Research in R&TD policy for 5 years and is active in Bio-Economy and Circular Economy concepts, with focus on thermo-chemical conversion of biomass, residues and waste to energy, biofuels, carbon materials production including biochar, in the context of zero-waste bioerefinery and closing resources loops. She is involved in national and international applied research and innovation projects and awarded for innovation in research. She is author and co-author of 95 papers in international journals and 200 conference presentations. She has been invited in several conferences as keynote speaker, organized several conferences, workshops and events.

Ir. Elisabeth Gustafsson is the CTO of Scandinavian Enviro Systems. She has a Master of Science in Chemical Engineering from Lund Technical University, Sweden. Her background is from the Rubber Industry, starting her career at Trelleborg Industri as chemist responsible for rubber compounding. Further on she worked at the Rubber Department of a Swedish Research Institute, SWEREA where she started and was the project manager for of a number of research projects involving the Swedish Industry in collaboration with Swedish and international researchers. She has also worked for ABB High Voltage Cables and the med-tech company Mölnlycke Health Care.

Ir. Maria Tellblom works with QA and product development of recycled carbon black at Scandinavian Enviro Systems. She has a Master of Science in Chemical Engineering, and a Licentiate of Engineering degree in Chemical Engineering Design from Chalmers University of Technology in Gothenburg (SE). With a joint background in pharmaceutical engineering, she was responsible for product development in several projects including both the candidate drug and the primary packaging. Additionally, she has a background in nuclear engineering projects where she was responsibile for verification and validation of project technical requirements and quality assurance within projects.

Ir. François Terrade is chemical Engineer from Bordeaux France (ENSCPB). During 40 years he has acquired a broad know-

ledge of Carbon Black Manufacturing, working for *Phillips Petroleum, Continental Carbon, Deutsch Degussa, Columbian Chemicals and Cabot Corporation*. In 2011 he founded *PRO2ACT MANAGEMENT*™ near Paris (France). He became a technical bridge between the Oil industry, the Carbon Black Manufacturing and the recovered Carbon Black with customers in these three fields.

Dr. Pieter ter Haar is currently the Head of R&D and QA for cct Stegelitz a Pyrolyx company near Magdeburg in Germany. His academic background is in Organic, Analytical, and Polymer Chemistry from the Hanze Hogeschool in Groningen, NL. Previously he worked as a Rubber Compounder for Fenner Dunlop Conveyor Belting in Drachten, the Netherlands and was in charge of sustainability development of rubber compounds. Pieter joined cct Stegelitz GmbH in 2015 to develop, build, and man-age the first R&D competence centre fully dedicated to recovered carbon black. He is one of the founding members of the new ASTM D36 Recovered carbon black (rCB) committee, and currently holds the position of vice chair. In addition to further expanding the knowledge and applicability of rCB, Pieter is committed to help the industry to develop and set up better and more relevant standards and test methods.

Dr. Chris Norris began his career in the rubber industry working as Rubber Applications Supervisor for Columbian Chemicals (now Birla) at their European Central Laboratories, providing technical support to European production facilities and assisting in the development of new carbon black grades, with emphasis on those used for tyre applications. He joined ARTIS in January 2012 as Analytical Services Manager, with responsibility for the chemical analysis capabilities within ARTIS. He has developed a detailed understanding of material recovery processes from waste rubber goods and has made major contributions to the fundamental knowledge of the behaviour of reclaimed fillers. He is a member of ASTM D36 committee on recovered carbon black and lead author of the paper on the topic which won the IOM3 Alan Glanvill award in 2015. He holds a first degree in 'Applied Chemical Sciences' and a Masters in 'Materials for Industry'. Prior to ARTIS, he gained a PhD at the Univ. of Bristol with his thesis entitled 'Self-Healing Composites via a Bioinspired Vasculature'.

Ir. Clara Song graduated from University College London and London School of Economics with a MEng degree in mechanical engine-ering and business finance. After a short stint in investment banking at Goldman Sachs, she worked as a rail systems engineer on some of the largest rail projects worldwide and advised lenders in relation to investing in rail PPP projects. She is avid about rolling out Black Bear plants around the world to produce high quality carbon blacks from end-of-life tires to maximize our positive environmental impact.

Scott Farnham, involved in tire recycling since 1995 when he designed/built his own lab scale pyrolysis machine to convert tires to oil, carbon black and steel on the first test run of the system. With funding from the National Research Council for further research he designed, constructed and operated the first tire recycling plant in Calgary, Ab. in 1997, which operated on a 24/7 schedule. He is con-sultant to Western Rubber Group in Delta BC, to construct and operate a crumb rubber plant. From 2000 to 2012, he expanded WRG production 3fold, designing and constructing new crumb, granulation and shred plants. The final WRG shred plant processes 40,000 tons per year of passenger car and truck tires. Downstream granulation and crumb plants have the same capacity. In 2015, he signed a multi-year agreement with Kal Tire to develop OTR recycling plants using pyrolysis technology. First Kal Tire OTR recycling plant is scheduled to open in Chile in 2018.

19.00 Cocktail Reception

FRIDAY 24 March 2017

08.30 Registration

09.00 Opening comments — Dr. Valerie L. Shulman

The Friday panels focus on innovations with new materials, technologies and applications – and perspectives. They concern a range of new materials that are commercially available and have entered into the mainstream of the rubber industries for use in compounds, mixes, blends and even tyres. They also explore the use of the less predominant materials in tyres – the textiles and steel.

Panel 4 focuses on Raw Material innovations within the context of the EIT programme and highlights the range of new materials that are available from recycling. Panel 5 is more concerned with a change of perspective – in other words, rather than exploring the use of rubberised asphalt in new construction and pavement surfaces – the panel explores the lonng-term maintenance of roads and how they can become more cost-effective and sustainable through their continued use, over time. Panel 6 re-evaluates the three waste-streams recovered from tyres – and their innovative uses in construction – primarily blended with concrete to produce unique output materials and products.

Panel 4 : Raw Material Innovation – Connecting Matters

09.15 The Challenges for Raw Materials — **Ir. Giorgio Recine, EIT**

09.25 EcoRub – on the move — **Ir. Ake Paulsson, ECORUB, Sweden**

09.45	**Designing cradle-to-Cradle Loops for Passenger Cars**	**Dr. Wilma Dierkes, Twente University, Netherlands**
10.05	**Best Management Practices**	**Denise Kennedy, DKEnterprises, USA**
10.25	**Sustainable Materials for Tyre Recycling**	**Dr. Martyn Bennett, ARTIS, UK**
10.45	**rMB and the Pending Rubber Supply Crisis**	**D. Elroy Fimrite, Global, USA**
11.05	**Value adding markets for recovered carbon black**	**Ir. Martin von Wolfersdorff**
11.15	**Questions and Discussion**	

EIT RawMaterials is a European Consortium of about 120 organizations (industry, research and academia) funded by the European Institute of Innovation and Technology to boost the competitiveness, growth and attractiveness of the European raw materials sector via radical innovation and entrepreneurship. The Consortium works as a thematic innovation community that develops innovative products and services, foster new business, encourage growth and nurture young entrepreneurial talent. It is characterised by a high degree of integration among Research, Industry and Business, and as a long-term perspective, wants to promote the entrepreneurial culture in Europe. The main target of the EIT RawMaterials is bring innovative solutions to the market to reduce the dependency of raw materials and assure a secure supply for Europe, addressing the whole value chain:

1. Exploration and raw materials resource assessment
2. Mining in challenging environments
3. Increased resource efficiency in mineral and metallurgical processes
4. Recycling and materials chain optimisation for End-of-Life products
5. Substitution of critical and toxic materials in products and for optimised performance
6. Design of products and services for the circular economy

Natural rubber is one of the raw materials included in the scopes of the Consortium. Therefore innovations to improve the added value in the recycling of tyres and create circular economy approaches are also promoted. In this framework the EIT RawMaterials also funds innovation projects promoted by the partners of the consortium, and promotes the creation of links with external partners to speed up the application of the solutions. Some innovative solutions promoted by partners in the tyre recycling sector are presented.

Ir. Giorgio Recine, Business Developer EIT RawMaterials, has a degree in Chemical Engineering at Sapienza University of Rome, Italy. After training in Silicon Valley in 2000, he became responsible for an R&D laboratory in the Area Science Park of Trieste, Italy, focusing on new technologies in renewable energies and energy efficiency. He later worked as programme manager and business developer at Labor srl. He has also worked as a Project Technical Advisor for the European Commission, being assigned for monitoring and reviewing 10 R&D projects in the area of Energy Efficiency in Buildings. Since 2016 he works as Business Developer at EIT RawMaterials.

Dr. Wilma Dierkes, a chemist with postgraduate study in environmental science, worked for Rubber Resources in Maastricht, a former subsidiary of Vredestein. She was in charge of R&D and Technical Service, and developed and introduced short recycling loops for production waste back into the original production process. She later worked for the R&D department of Robert Bosch Produktie, where she developed windshield wipers and became the head of the chemical laboratory and part of the trouble shooting team in the production facility. Since 2001 she is Associate Professor in the chair of Elastomer Technology and Engineering at University of Twente. From 2009 - 2013 she was part-time professor at Tampere Technical University, Finland. Her key research areas are reinforcing filler technology, with emphasis on silica filler systems, and recycling and re-utilization of elastomers. Other research includes polymer networks and fiber reinforcement. She has published more than 60 reviewed papers, 11 book chapters, and holds 4 patents. For 10 years, she served as a board member of the Dutch Association of Plastics and Rubber Technologists (VKRT), and from 2005 - 2014 she was chair of the association. She is a founding member of the Female Faculty Network at the University Twente of which she also was a board member and chairman for 3 years.

Martyn Bennett is a founder and Chief Scientist for ARTIS, UK. With over 29 years experience in R & D within the rubber industry, his ex-perience covers many aspects of polymer science and technology including rheology and processing, compounding and quality control, structure property relationships, materials characterisation, experimental design and performance modelling. It covers multiple industry sectors from tyres to defence, offshore and signature management, FMCG to automotive. Recycling and sustainability are among his passions. He launched the ARTIS sustainable materials group. He has delivered pioneering work in flow modelling of rubber and electro-chemical degradation and provided robust defence in legal arguments with major automotive OEMs and FMCG suppliers. He sits on advi-sory boards for Loughborough and Queen Mary Universities, the Knowledge Transfer Network, Institute of Materials and BSI committee for testing of rubber. He is a fellow of the Institute of Materials, Minerals and Mining and was joint author of the paper winning the IOM3 Alan Glanville award in 2015 and winner of the Hancock Medal in 2016.

Åke Paulsson is the inventor of EcoRubs technology to make a thermo plastic hybrid material from rubber powder polyolefin plastics and copolymers. Ecorub was granted funds from the EU Eco-innovation programme. The company has a readiness level of 9. 2010 the company was listed at a small business stock exchange in Sweden called Aktietorget in order to raise finances and

about 2 Million € was gathered. With that stock in the company Venture Capitalists took seats on the company board and pushed out the inventor. By the spring of 2016 the Venture Capitalists had spent all the money and achieved nothing due to lack of Know How and bad management. In June 2016 the company was ready for bankruptcy and the inventor together with some disappointed larger stockholders took over the board of the company. Now all the debts are cleared and the company is reorganized on a small scale.

Douglas Elroy Fimrite, President, EFG America LLC. has a very diverse background with a unique skill set interwoven with strong business relationships in North America, China, Europe and the Middle East. He has extensive experience in tire recycling, real estate development, construction, finance, corporate structuring, project management, corporate management and MIS design. Commencing in 1996, he became involved in the tire recycling industry, founding a company that acquired rights to a Chinese rubber devulcanization technology. EFG America LLC has acquired the North American rights to the devulcanization business and has been advanced to commercial production at their facility in South Texas.

Ir. Martin von Wolfersdorff is an independent advisor to the chemical industry. He has over 20 years experience in global chemical industries with 14 plus years in titanium dioxide pigment, 2 years in custom colour masterbatch for fibres, artificial turf, packaging and automotive interiors and 3 years in carbon black for tyre and rubber applications. Since 2014, he has worked with the global tyre pyrolysis industry on market and product development of recycled carbon black. For 10 years, he has specialised in sales leadership, effectiveness and commercial excellence including accelerated business development, key account management, pricing and sales process optimisa-tion. He holds a German "Diplom Ingenieur" (Univ.) master degree in chemical and process engineering from Friedrich Alexander Univ. in Erlangen-Nuremberg, (DE) and his thesis at the University of Surrey in Guildford, UK in collaboration with Imperial Chemical Industries.

Denise Kennedy, DKEnterprises, please see page 6

11.30 **Coffee break**

Panel 5 : Maintaining the Roads of the Future – A Change of Focus

12.00	**A Change in Focus : Life cycle costs**	**Dr. Serji Amirkhanian, Univ. of Alabama , USA**
12.20	**Improving Environmental impacts**	**Ir. Costis Keridis, Christoforos Keridis S.A, Greece**
12.40	**Preparing the Team**	**Ir. Andres Macho Jimenez, Ministry of the Environment, Spain**
13.00	**Future Transport Infrastructure : Upcoming Challenges**	**Ir. Thierry Goger, Secretary General FEHRL, EU**
13.20	**Questions and Discussion**	

Recycled tyre rubber is used in a broad array of civil engineering and construction applications around the world. One of its most prevalent uses is in road infrastructures particularly as surface materials for road pavements, as a component in rubberised asphalt mixtures. The benefits of these mixtures are well recognised for skid resistance, glare reduction, drainage, among many other benefits. Nonetheless, while they are widely accepted virtually world wide – and have been tested repeatedly over the years - few roads have been constructed with these materials here, within the EU.

Infrastructure concerns are beginning to change – with greater focus on longevity and long-term maintenance, repair and restoration. Key issues are life-cycle costs rather than only installation costs ; long term carbon footprint impacts - and making major improvements on the environmental impacts of road use through the use of rubber modified materals for long-term repairs and road modification ; among many related points that - over the life of a road - would have major environmen-tal and economic impacts.

Dr. Serji Amirkhanian is a Professor of Civil Engineering at University of Alabama, Tuscaloosa. He is the Co-Director of International Recycling Rubber Products Initiative at UNLV. For more than thirty years, he has conducted research in the area of asphalt mixtures, recycling, and polymers. He has published many peer reviewed articles, research papers and reports and has presented his research team findings in many conferences around the country and the world. He is a member of many professional organiza-tions (e.g., ASCE, ASTM, etc.). He is also a Professor of Civil Engineering at Wuhan University of Technology (Wuhan, China) and an Adjunct Professor at IIT Madras, India. Many of his former students can be found throughout the world in professorships, and chairmanships – as well as in revered corporate positions, and government roles.

Dipl. Eng. Costis Keridis is Managing Director of Christoforos Keridis S.A. in Thessaloniki, Greece. His company operates quarries, asphalt plants and tyre recycling plants, and since 2011, he is also involved in total solid waste management. The company uses end of life tyres in bitumen modification for asphalt mixes and in bales for earthworks. For the past ten years he has concentrated on developing Greek interest in the use of post-consumer tyres as a road surfacing additive material and completed several projects in Athens. He developed one of the first certified private Road Material Laboratories in Greece, and was a partner in two Life funded projects which have been presented during ETRA conferences. He is a Vice President of ETRA representing Greece and the road construction industry.

Ir. Andres Macho Jimenez had thirty-seven years of experience prior to retirement in 2015. Key works include: Direction, planning, coordination and supervision of works carried out by technical staff on infrastructure (highways, roads, city planning, rail roads), building (construction, building pathology), and environmental engineering (reforestation, soil protection, erosion control, environmental assessment studies and waste management). He began his professional activities at Nuclear Safety Council, the official government Organism for regulation and control of Nuclear Power Plants. From 2001–2015 he was Technical Adviser of the General Directorate of Environmental Quality and Assessment of the Envoronment Ministry. He was Director of the Working Group to draw up and implement the Spanish Royal Decree 1619/2005 on management of post–consumer tyres, Spanish Representative in the EU Working Group of Directive 2006/21/EC of the EU Parliament and the Council on the management of waste from the extractive industries and the Representative of the Ministry of Environment in EUROSTAT Working Group on Waste Statistics and Director of the Information System of Waste of General Directorate of Environmental Quality and Assessment. He has broad experience on international works and missions, civil and environmental engineering, for the EU Commission, the Spanish Administration and the International Atomic Energy Agency (U.N. Vien).

Dr. Thierry Goger is Secretary General of FEHRL, the association of the European National Road Research Centres. He is actively involved in the development and the promotion of strategic R&D&I agendas and programmes in the field of road and transport infra-structure. He represents actively FEHRL in various stakeholders' plateforms such as ERTRAC, ECTP, ECCREDI and several others. He also regularly directly liaises with policy-makers in particular the European Commission and Parliament as well as transport author-ities (e.g. CEDR – Conference of the European Road Directors). On the research side, he is the coordinator or member of a large number of European projects, including the very innovative ERA-Net scheme "INFRAVATION" where FEHRL enables the unique cooperation between European and US funders as well as research providers.

13.30 LUNCH

Panel 6 : Construction and Concrete — Dott. Ettore Musacchi, ETRA

14.45	**Tyre elements to Reduce Environmental Impacts**	**Dr. Reyes Garcia, University Sheffield , UK**
15.05	**Steel fibre reinforced rubberised concrete**	**Dr. Thomaida P. Polydorou, Cyprus**
15.25	**Rubber as a lightweight aggregate**	**Dr. Barbara Frigo, Polytechnic of Turin, Italy**
15.45	**In Situ cast flooring insulation**	**Dr. Rossella Poli, Isuleco, Italy**
16.05	**Questions and Discussion**	

Dr. Reyes Garcia is a Research Associate at University of Sheffield (UK). He obtained his MSc from ROSE School (It) and University of Grenoble (FR), and PhD from University of Sheffield (UK). He is Technical Coordinator of the EU-funded Anagennisi project that is developing innovative solutions for all tyre components in high value innovative concrete applications with reduced environmental impact. He is also co-Investigator in two Newton Fund projects on Rapid Post-Earthquake Disaster and Risk Management for Industrial and Urban Zones in Turkey.

Arch. Rossella Poli, is an expert in thermal and acoustic insulation materials and sustainable building design. She has worked for many years in the building / construction sector. She recently joined ISOL-ECO, an SME specialised in new eco-innovative building products for civil, industrial, public infrastructure and urban purposes. Located in Calerno (Reggio Emilia, IT), it uses various size recycled tyre mater-ials to manufacture sound and energy insolation products and applications. The products offer considerable advantages through energy savings and sound abatement. The company is specialised in the use of environmentally friendly and recycled materials. Its pres-ence in the INSUL-ECO project is particularly relevant as they have developed and tested the insulating panels made with recycled textile fibres.

Dr. Thomaida Polydorou is a Marie Skłodowska-Curie Postdoctoral Research Fellow at the Cyprus University of Technology. She holds a PhD in Civil Engineering from Kansas State University, USA (2014). Dr. Polydorou is currently working on the EU funded project "SAFER", investigating Steel Fibre Reinforced Rubberised Concrete for Forgiving Infrastructure applications and specifically Road Safety Barriers. She has also worked on the EU FP7 project Anagennisi-Innovative Use of all Tyre Components in Concrete.

Dr. Barbara Frigo is Asst. Professor of Structural Mechanics in the Dept. of Structural, Geotechnical and Building Engineering at the Politecnico of Turin. She is author of more than 120 scientific publications, published on International Conferences in International Journals on Structural Engineering, Materials Engineering and Fracture Mechanics. She has been a speaker at 30 International conferences and invited speaker in many international workshops on Snow Engineering. She participated in 20 national and international projects, including ERASMUS, "Licence professionnelle en formation ouverte et à distance pour la performance énergétique et environnementale des bâtiments en Fédération de Russie, en Chine et en Azerbaïdjan / LPEB", 2015 –2017. She is a Reviewer for the Natural Hazard and Earth System Sciences (NHESSD), Cold Regions Science and Technologies (CRST), International Journal of Geo-mechanics.

Dott. Ettore Musacchi, ETRA please see page 5

Part III : Expanding your Network

16.15 Matchmaking Groups : An opportunity to make professional contacts

FRIDAY 24 March 2017

Matchmaking is an opportunity to participate in working groups with potential business, technology and research partners. During the 23rd Conference, ETRA worked with **NCP Brussels Impulse-Brussels**, to sponsor the matchmaking programmme and are collaborating with us again for the 24th Conference.

The working groups provide an excellent post-conference follow-up for potential partners to pre-arrange group meetings to capitalise on Tyre Recycling opportunities, in four areas:

- Roads Maintenance, Materials and Technology
- New Secondary Raw Materials
- Research and Development

The Matchmaking sessions provide an excellent opportunity for Entrepreneurs, Technicians, End Users, Research bodies, Universities, and others, to set up partnerships, discuss new ideas, outline potential new projects, discover new and innovative products.

The event will target a wide spectrum of companies, universities and researchers from Europe and beyond to foster the creation of consortia for the upcoming EU calls 2017/18.

Three tables will be available - each representing a separate topic – with space available for 8 – 10 delegates. Each Table is Co-Chaired by a coordinator and a subject-matter expert. Each group will cover a list of agreed points to attempt to reach a concensus conclusion.

Table A): Roads Maintenance Materials and Technology

Topic:	**How Standards and the Circular Economy Package could be used to expand the use of rubberised asphalt within the EU.**
Co-Chair :	Ir. Serji Armikhanian with worldwide experience with the mixes and use of rubberised Asphalt for construction and maintenance
Co-Chair :	Joe Koury with a background as Standards Development Manager, is working with ETRA on standard utilisation
Points:	1. maintenance for the extended life-cycle of roads
	2. Rubberised asphalt treatments : Materials, technologies, applications and products
	3.. Actions needed to support market development – use of the Standard, Circular Economy Package, green public procurement,a manual; etc.
	4. The Team
	5. proposal to ETRA

On Friday morning an important panel on roads will raise questions and seek answers to issues that require further discussion in a smaller and more specific group.

Following last year's meeting a Team of experts has worked to start the preparation of a Road Manual. The scope is to expand and increase the use of rubberised asphalt throughout the EU, thus improving the life-cycle. The manual will describe what has

been done in various countries, the problems encountered and how they have been resolved, etc. However further actions shall be needed, such the use of appropriate standards and the support of the Circular Economy Package. ETRA and ASTM are working together in this programme.

The Circular Economy package was adopted on 2nd December 2015, consisting of an EU Action Plan and legislative proposals on waste. It will set the resource efficiency agenda of the Commission for the next years. The aim of this table will be to offer SMEs models and tools for working together, sharing experiences, and knowledge, in order to cooperate to grow and expand markets for Recycled Tyre Materials, seizing the opportunity of the Circular Economy policy.

Table B): New Secondary Raw Materials

Topic: **How far are we from producing a new range of valuable raw materials : upgrading**

Chair : Prof. Fabrizio Quadrini heads the Department of Mechanical Engineering of the Univ. of Rome, teaching Manufacturing Systems Technology focused on the innovation of products and manufacturing processes

Points:
1. The State-of-the-art
2. Need for upgradingb: which technologies are available
3. Potential markets : potential quantities and value
4. Actions needed to support market development
5. proposal to ETRA

Many projects have been presented over the years and new possibilities are opening for the future. There are many important examples of efforts by entrepreneurs, manufacturers and research centres to define a new vision for tyre recycling : “secondary raw materials from tyres”, is one.

The Raw Material Innovation Panel and the Pyrolyisis team hove described have some of the most innovative experiences in this field. Other examples have come from different industrial processes such as rubber moulding or extrusion.

Key points covered by experts and technicians from around the world are : material features, performance, production processes, sustainability and marketing options. Some of these products must be further developed and upgraded, to be commercialised on a broader basis. Questions and issues will be raised that require further input in a smaller and more specialised group.

The aim is collecting information and inputs from the participants to be submitted to ETRA and its team in order to develop proposals for new projects.

Table C): Research and Development

Topic: **EIT Raw Materials, R&D, IPR and investment opportunities cross and interact with other sectors. Which could be more attractive and what are the tools available?**

Chair: Elena Angiolini, ImpulseBrussels, Giorgio Recine EIT

Points:
1. State of the art
2. Sectors, materials, technologies
3.Tools and instruments
4. Actions needed to support R&D, exploitation, new investment.
5. proposal to ETRA

The European Commission has become increasingly concerned about the sustainable use of Raw Materials and Innovation. Thus, the experts for this table include a representative of EIT (European Institute of Technology) dealing with Innovation in Raw Materials with an expert on other R&D finance support and tools.

Tyre Recycling is a young and dynamic sector. Recycled Tyre Materials are already used in a wide array of materials, products and applications in variety of sectors, including the production of new tyres, which has motivated tyre recyclers to research and develop innovative new optopm. RTMs are widely used in sports infrastructure, roads and transport infrastructure, civil engineering and construction, as well as consumer and industrial products.etc.

According to the logic of the Circular Economy, recyclers applied "ante litteram" (i.e., before its time) - not only the rubber, but the steel and textile fibres obtained from tyre recycling. Everything is recycled and valorised. Use of these materials improves performance, increases durability, contributes in the solution of critical issues. Throughout the years, ETRA and its members have participated in many research projects, some -- ongoing.

The R&D Group will explore potentials for exploiting the results of these projects, the knowledge derived about which tools can be used (IPR, JV, start up, etc.) in partnership, and which supports could be available from the EU, etc.

ETRA has selected three among the most promising projects with which we would like to initiate the discussion and identify possible ways of funding and continuation:

1. TyGRe, on the production of SiC from pyrolysis of post consumer tyres

2. Anagennis, on USE of RTMs in concrete
3. SMART, Moulding of recycled rubber products without binders

18.30 The interaction between the various table groups will continue during the final cocktail

The goal of the discussions is to bring together a diverse group of people interested in progressing the tyre recycling industry–expanding awareness and opportunities for the use of the materials, products and applications of this sector.

We would like to invite you to participate in this effort!

Please complete the attached form and return it to ETRA