



REXIZON CONSULTING EXPERTISE LTD
16, LEOVILLE L'HOMME STREET , PORT-LOUIS, MAURITIUS

BUSINESS REGISTRATION NUMBER:C07075503

E-MAIL:INFO@REXIZON.COM

January 20th, 2012

PRODUCT CARBON FOOTPRINT CERTIFICATION REPORT

Reference: MLCAS3CFP01-10-2012

Attention of Dr Francesca Bozzo

Director

Flainox SRL, Via G. Leopardi. S

13854 Quaregna - Biella - Italy

Dear Madam,

Our firm was appointed to report the product carbon footprint of the Universal NRG rotary dyeing machine for Flainox SRL at site located at Via G. Leopardi. S. 13854 Quaregna - Biella – Italy.

Before undertaking this assignment we made sure to apply standard procedures and to ensure we had the skills, competences and appropriate training to undertake this specific project.

We consider the assessment being true and fair of the GHG emissions reductions situation from Flainox SRL considering the time spent on research via official sources, discussions and audits following the visits on sites from 16th to 20th January 2012, the data collection controls and the level of assurance is deemed to be reasonable.

This assessment report is produced to be used by the management of Flainox SRL and parties interested in the above described GHG emissions and carbon footprint assessment. Reliance on the conclusions of this verification report for any other usage may not be suitable.

This verification report and the supporting work files are kept confidential and will be safeguarded for 10 years after which period they will be safely destroyed.

Confident in the hope that everything complies with your requirement we remain,

Yours very truly

Benoît J. A. Schmitt *B. Schmitt*

Engineer ENSI, MSc

Director Rexizon C.E. Ltd



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Rexizon C.E.Ltd is an international firm specialized in non traditional management consulting with strong experience in sustainable development. These past years, we have developed specialized expertise in the quantification of carbon emissions, carbon footprints and reductions assessment on different companies, processes and products in various countries worldwide.

In that capacity, we help companies count, quantify, manage and reduce their carbon emissions and accrue cost savings. Our expertise consists in selecting, applying and elaborating methodologies and technologies to quantify the emissions based on reputable international sources and provide eco-efficient solutions to reduce emissions.

We have verified the GHG Emissions for Universal NRG model 2011 in comparison with standard model Universal NRP starting from 1st january 2008 to 2011 ending on 31th December 2011.

The Life cycle assessment scopes on textile dyeing and finishing machinery manufacturing at Flainox SRL site located at Via G. Leopardi. S. 13854 Quaregna - Biella – Italy and the usage phase in Central America with accurate information.

We produced the report in accordance with the Kyoto Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition) - A step-by-step guide for companies to use in quantifying and reporting their greenhouse gas emissions scope 1 and 2 and partial scope 3 including business travel.

The other quantification resources that have been used are:

. ISO 14064-1: 2006 - Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals adopted without modification from the identically titled International Organization for Standardization (ISO) Standard,

.ISO 14064-2: 2006 - Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removals enhancements,

. Publicly Available Specification (PAS) 2050:2008 - Assessing the life cycle greenhouse gas emissions of goods and services - guidelines.

The emissions factors chosen are based on ISPRA- (Institute for Environmental Protection and Research, Rome) latest information and Revised 1996 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories – that contains step-by-step instructions for calculating greenhouse gas emissions from six major emission source categories for national inventories recommendations.



The product carbon footprint survey specifications are following:

- Scope of emissions:
 - All GHGs specified by Kyoto protocol and latest IPCC publication
 - GHG assessment basis: 100 year GWP for specified emissions,
- Functional Unit: FLAINOX UNIVERSAL NRG (Model 240) rotary dyeing machine
- Boundaries :
 - System: raw materials, manufacturing, delivery, use and final disposal
 - Geographical representativity: manufacturing in Italy, use and disposal phase in Central America
 - Life Cycle Assessment comparison from cradle to grave LCA on textile machinery has been done with Universal NRP modele 240 year 2008 baseline as standard reference and comparison reference, from cradle to grave LCA: Validation of improvements
 - Extent of the life cycle:Whole life cycle: 15.5 years, including use phase: 15 years,
 - Use phase profile: textile plant located in Central America, cotton fabrics, dyeing and white with time allocation (80% reactive black /20% full white), standard batch size 270 kg, efficiency: 90%,7 days, 48 weeks/year, utilities included as : water, electricty, steam, chemicals, dyes, and maintenance are included
 - Temporal representativity: update data collection in January 2012, yearly review of latest data from 2011
- Multiple output products: Not applicable, (textile fabrics Carbon Footprint not included in scope)
- Offsetting: No offsets are included in the assessment

The Carbon footprint of Universal NRG through all its is Life Cycle of 15 years is **15 840** tonnes of carbon dioxide equivalent (CO2 e.) with respective break-down :

Raw materials:	30.3 Tonnes CO2 e.
Assembly and production:	1.0 Tonnes CO2 e.
Transport:	23.9 Tonnes CO2 e.
Use	15783.0 Tonnes CO2 e.
Disposal	1.7 Tonnes CO2 e.

and 99,6% of GHG emissions occur at usage phase in textile plant. With Universal NRG Flainox has already achieved outstanding sustainable performance on CO2 e. reduction of **8,488** tonnes per machine with significant water consumption and energy savings.



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The absolute product carbon footprint for the year of application 2011 has been reduced by 35% down in comparison with historic data. Respectively the carbon emissions of raw materials, assembly and production, transport, use and disposal phases have been reduced respectively by 55%, 84%, 25%, 35% and 10%.

Nearly 45% costs savings on operating costs at textile plant level including water, energy, chemicals, labor and maintenance could be achieved.

The technological improvements mainly thanks to Eco-Design are providing further carbon emissions mitigation at customer usage with 35% absolute reduction versus standard model reference.

For the textile plant user, taking account of production increase, it could represent over 45% CO₂ e reduction per kg fabric produced and \$2,5 million in 15 years savings of operating costs per machine in comparison with standard reference.

Uncertainty is low since it is mainly associated with data collections that were verified and correlated using a variety of primary data (invoices, official documents, internal data spreadsheets...). Thus, we can conclude that uncertainty is low with the followed methodology and with the conservative choices we have made.

Acknowledging that an accurate carbon footprint measurement including all required greenhouse gases emissions sources has effectively been provided through entire life cycle, that absolute reduction and relative efficiency improvement of more than 40% in comparison with respective historic data qualifying has been achieved for BLUE CARBON[®] FOOTPRINT MITIGATION Blue level, and that good carbon management to standards is demonstrated on site including carbon governance, accounting, reduction methods and targets.

The prestigious BLUE CARBON[®] certification is granted for one year till 18th January 2013 to Universal NRG, rotary dyeing machine of Flainox SRL at Via G. Leopardi. S. 13854 Quaregna - Biella – Italy for sustainable performance achievement in carbon emissions reduction.

B. Schmitt

Benoît J. A. Schmitt

Engineer ENSI, MSc

Director Rexizon C.E. Ltd

