BRAZILIAN BIOCOMBUSTÍVEIS
Tecnologia Renovável Avançada

enac
Ente Nazionale per l'Aviazione Civile
Italian Civil Aviation Authority

Officially selected in the Italy test´s program
"Roadmap for Sustainable Aviation Fuels (SAF)"

Preliminary Investment Prospectus

2025

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The realization of hypotheses, programs and actions assumed and planned is strictly subject to the decisions of BBL.

1.1 Company

Brazilian Biocombustiveis Ltda ("BBL") is a company incorporated under Brazilian law as a technical partnership between Italian and Brazilian chemical engineers, as well as investors from both countries. This partnership gave rise in 2018 to a first experimental plant located in the industrial area of Macaíba (RN, Brazil), used only for quality tests of the new biofuel, reliability of vehicles and equipment.

For the mandate of its founding members, its ***main activity is the production, promotion and marketing of a new generation biofuel***, an innovative production system, ***from virgin and used crude vegetable oils***. BBL technology is also applied to any ***process of recovery of classes of materials that are particularly polluting*** and have a high environmental impact, such as the discharge of mineral and vegetable oils and/or fats of animal origin. The hazardousness of these substances is mainly linked to traces of toxic and persistent waste, which are very dangerous to the environment and human health if not handled correctly.

1.2 Mission and vision

BBL technology aims to become in 5 years one of the main solutions for the production of new generation biofuel with low environmental impact, with production costs lower than those of diesel and traditional biodiesel.

We want to be perceived and known as a high-quality company with an innovative production system that is faster, more efficient and more flexible, and ultimately more profitable than traditional ones.

We intend to act with maximum transparency and professional ethics with customers, employees and suppliers, ensuring the certified quality of our products and providing services that exceed social and environmental requirements and the legislation in force in the various countries where we intend to expand our activity. .

The licensed user of BBL technology will have to plan and gradually implement the replacement of a reasonable part of the market for the production and commercialization of regular Diesel and additives, replacing them with BBL DX* fuel, as well as the chance to enter the government sector market through the public auction system.

2. BBL¨Brief history¨: From the University to Sustainable Aviation

The story of **Brazilian Biocombustíveis Ltda**, began with a visionary idea in a laboratory of the renowned University of Rome (Italy), ¨**La Sapienza**¨. For more than 20 years, the brilliant Italian chemical engineer **Dr. Andrea Festuccia** has dedicated himself to the study of new possibilities for alternative biofuels, seeking innovative solutions to the growing need for clean and sustainable energy.

Dr. Andrea Festuccia, known worldwide for his contributions in the field of applied chemistry, began this journey with a laboratory research focused on the development of a more efficient and less polluting biofuel, which would be a valid, more economical and viable alternative to the traditional Biodiesel. His dedication and expertise culminated in the completion of a first phase of successful testing. What began as academic research piqued the interest of two Italian entrepreneurs, **Alessandro and Roberto Pes**, who glimpsed the commercial and global potential of this technology.

2.1 The Business Turn

The decision to transform this laboratory research into an industrial enterprise was reinforced by the entry of a Brazilian partner, entrepreneur **Silvio Carvalho Villarim,** who shared the vision of expanding the project beyond the borders of Italy. Together, the three partners decided to invest in the development of the technology, founding the company **Brazilian Biocombustíveis Ltda.**

In 2018, after much planning, they opened the first **experimental factory** in Macaíba, in the state of Rio Grande do Norte, Brazil. The strategic choice of this location was aimed at facilitating easy access to raw materials and allowing greater proximity to potential markets in Latin America. The initial objective was simple: to test the feasibility of producing on a large scale the biofuel that **Dr. Andrea Festuccia** had developed in the laboratory. During this period, the Chemical Engineer Professor at UNP and UFRN in Natal (RN), **Francisco Wendell Bezerra Lopes, also joined the team,** who contributed a lot, with his experience and knowledge, to the improvement and final development of the technology.

The experimental unit and its production underwent rigorous analysis in the laboratories at UFRN in Natal, CTGAS and UNP, and extensive performance tests, which included the use of biofuel in automobiles, agricultural machinery, diesel generators and even boats. These tests aimed to ensure that the biofuel was not only viable but also effective in a variety of conditions of use and temperatures, as well as meeting stringent performance and safety standards.

2.2 Achievement of the Patent

After five years of hard work, continuous investments and a series of adjustments in the production process, Brazilian Biocombustíveis has reached another important milestone. In 2019, after the first year of production and performance testing, the company submitted an international patent application for the revolutionary biofuel. The document was registered under the number "**PCT/BR2019/050531**", which would later be recognized in the national phase with the number "**BR 11 2022 011447-8 A2**", with the title "***Process, method and formulations for the production of an alternative fuel to the traditional Biodiesel"***. This technological advance was the result of the fusion between academic research and the entrepreneurial capacity of the three partners.

This patent application consolidated **Brazilian Biofuels**' position in the renewable energy market, not only as a promising startup, but as a benchmark in the biofuels sector. The new alternative fuel offered a more sustainable and efficient solution, with a lower environmental impact compared to traditional biodiesel.

2.3 International recognition: a new stage

The apex of this successful trajectory came on October 4, 2024, when Brazilian Biocombustíveis Ltda, was officially selected by **the Ente Nazionale per l'Aviazione Civile (ENAC),** the Italian civil aviation authority. The company has been included in the prestigious "**A Roadmap for Sustainable Aviation Fuels in Italy**" program, which aims to promote and test sustainable fuels for the airline industry, in line with the decarbonization goals of European aviation. **Brazilian Biocombustiveis** was the only Brazilian company to be admitted to this prestigious European program.


Neste
World Kinect Corporation
Brazilian Biocombustiveis

Figure 15 . Map of operators in the fuel supply chain participating in SAF questionnaires

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Name	Locations in Figure 15	Known activities related to SAF
Brazilian Biocombustiveis Ltda	Abroad	Production of biofuels in Brazil and ongoing set-up of logistics network in Italy

With this, the Brazilian company joins Italian industry giants such as **ENI SPA**, **Italiana Petroli SPA** and **Total Energies Italia** SPA in a joint effort to drive sustainability in the airline industry. The selection of Brazilian Biocombustíveis to participate in this rigorous program of emissions and performance tests for aviation fuels reinforces the global potential of the technology developed.

This collaboration places **Brazilian Biocombustíveis** in a select group of companies that are at the forefront of the energy transition in the aviation sector, one of the most challenging when it comes to implementing sustainable solutions.

2.4 The Future of Sustainable Aviation

With its technology already patented and now tested in one of the most rigorous industrial environments, **Brazilian Biocombustíveis Ltda**. is poised to revolutionize the sustainable fuels sector, not only in Brazil, but globally. The journey that began in the laboratories of the University of Rome now reaches the heights of international aviation.

This story is a testament to the power of scientific research coupled with entrepreneurial spirit, where innovation knows no borders. **Brazilian Biocombustíveis Ltda** is paving the way for a future in which aviation and other energy industries can operate in a more sustainable way, with less environmental impact and with technologies that integrate the best of both worlds: science and business.

2.5 The BBL technology

The technology underlying the BBL business project is covered by a ***new Biofuel patent application*** filed and registered at the end of 2019 under number ***PCT/BR2019/050531***, national phase ***BR 11 2022 011447-8 A2,*** entitled "Process, method and formulations for the production of an alternative fuel based on plants, animals, minerals or a combination thereof, also depleted, regenerated and/or genetically modified, algae and microalgae and/or oils derived therefrom, added to primary and/or higher alcohols, and/or dimethyl-sulfan, and/or diols, ketones and other additives for use in generators and/or internal combustion engines for diesel motor vehicles, and/or turbines and/or boilers".

Our technology, whose ***patent is an integral part of BBL's corporate assets***, was first developed in Italy by Italian chemical engineer ***Prof. Dr. Andrea Festuccia***, through a design and investment path developed more than ten years ago. The technology was then finally expanded with ***the installation of a factory/laboratory located in Macaíba*** (Rio Grande do Norte, Brazil), in which ***the biofuel production process, laboratory analysis, emissions and performance tests on diesel engine vehicles and power generators, were developed for more than 3 years,*** which finally led to our PCT patent application and national phase.

Unlike the traditional conventional Biodiesel production system, the technology uses a ***combination process*** *(without temperature variations)* between crude or used vegetable oil and/or used mineral oil, and selected additives (naturally generated alcohols), **without by-product (without glycerin removal).** The result of the ***process we have patented is a new economical and stable Biofuel (BBL DX)*** for diesel engines for different industrial and commercial sectors of use, on average with the same characteristics and performance as diesel and biodiesel, but definitely much less polluting. Another important aspect is that our biofuel ***can be used in the internal combustion engines*** of the most modern cars and light vehicles **without the need for any modification to the engine or combustion system.**

The BBL DX can be used in generators and/or diesel internal combustion engines for automotive and automotive traction and/or for power generation, in boilers, burners or turbines for the production of electrical or thermal energy. The tests we developed at our plant in Macaíba also proved a ***reduction in fuel consumption and an increase in the power and efficiency of the vehicle's engine***

The balanced viscosity of our biofuel, together with other elements that characterize our patent application, ***neutralizes the formation of carbon deposits in the injectors and piston rings, favoring excellent fuel spraying.***

Table 1 – Comparison of the main parameters between our BBL 100 vs. Diesel Oil

PROPERTY ANALYZED	BBL 100	DIESEL S10
SPECIFIC MASS AT 20 °C, (KG/M3)	847,70	815 to 853
TOTAL SULFUR (MG/KG . MIN)	<3.0	15,0
VISCOSITY (MM2/S)	3,801	2 to 5
FLASH POINT (°C)	<40	38
HIGHER CALORIFIC VALUE (KCAL/KG) 2	8.210	10.885
LOWER CALORIFIC VALUE (KCAL/KG) 2	7570	10.178
DRAIN POINT (°C)	-27	0 to -12
CETANE NUMBER	41,60	42 to 48

1 – Analysis in October 2018 at the Fuel Laboratory of UFRN/ANP (our biofuel made with used frying oil)

2 - It is possible to obtain Calorific Value values even closer to Diesel, with some changes in the initial formulation. We emphasize that, despite a lower calorific value in relation to the Diesel data, the tests (see pages below) of performance, engine power and consumption are not only in line, but are slightly better than the Diesel currently on the market.

Table 1 - Comparison of the main parameters of BBL DX100 vs. Diesel

2.6 International recognition

On October 4, 2024, BBL was selected by the **Ente Nazionale per l'Aviazione Civile (ENAC),** the Italian civil aviation authority, to participate in the "**A Roadmap for Sustainable Aviation Fuels in Italy" program**. This inclusion in the SAF highlights the global potential of the technology developed by Brazilian Biocombustíveis in promoting sustainability in the airline industry.

2.7 Strategic Partnerships

The company collaborates with academic institutions **(UFRN, CTGAS, UNP, ENAC ITALIA, AMAZING GREEN, ISCC CORSIA, ETC.)** and industrial industries to continuously improve their technology and expand their application in the biofuels market. These partnerships strengthen **Brazilian Biofuels' position** as a leader in innovation in the renewable energy sector.

2.8 Commitment to Sustainability

Brazilian Biocombustíveis maintains a firm commitment to environmental sustainability, seeking solutions that contribute to the reduction of the carbon footprint and promote the use of renewable energy sources. Its patented technology represents a significant step forward in the transition to cleaner, more efficient fuels.

2.9 Testing and Certification

Collaborations with:

- National Civil Aviation Authority (ANAC) and ENAC (Italy).

- Leading airlines in performance validation.

- UFRN, CTGAS, UNP

2.10 Competition

In the world of fuels for industrial and commercial use, the need to identify economically competitive and environmentally sustainable technological solutions to produce alternative fuels to traditional ones is becoming increasingly important and valuable.

2.11 Traditional Biodiesel

The current state of the art includes traditional biodiesel currently produced through a ***transesterification process***: related to this are ***critical aspects*** related to the economic efficiency of the final product, including the need for important capital immobilization for the construction of storage and production facilities.

In addition, in terms of emissions into the air, traditional biodiesel ***does not completely solve the problem of reducing pollutants*** released into the atmosphere compared to traditional diesel fuels. The release of nitrogen oxides into the atmosphere is currently considered one of the most dangerous compounds, although it is the sore point of this traditional technology.

Among other things, burning traditional biodiesel has, on average, an ***increase in NOx emissions of 8-10%*** compared to burning diesel. This is from the high oxygen content of traditional biodiesel.

Even blends cause an increase, albeit smaller, in NOx emissions, which is around 2-3%, for example, for B20 always compared to diesel.

Another typical disadvantage of traditional biodiesel is given by the fact that *the* ***high solvent power of methyl ester causes damage to incompatible plastic materials*** (mainly seals) and can create problems with the possible deposits of diesel oil left in storage tanks.

If you are going to use biodiesel, it is necessary to replace or, in any case, periodically check the polymeric components that make up the suction and return pipes, the pump packaging, the hoses and the gaskets, and it is highly recommended to clean the tanks and residual fossil fuel boilers.

Given this, the use of new generation biofuel is definitely more effective, much cheaper and less polluting than the use of traditional biodiesel.

2.12 Other biofuels

Other types of fuels, such as synthetic diesel, or split-type renewable fuels with hydrogenation and fractionation techniques, such as Jp-8 (aviation propellant) or HRJ (Hydrotreated Renewable Jet Fuel) or biodiesel derived from algae or microalgae are still far from economic competitiveness and present technical and scalability problems when it is necessary to carry out massive production.

3. CHARACTERIZATION OF ACTIVITIES

COMPANY:	BRAZILIAN BIOCOMBUSTIVEIS LTDA
CNPJ:	29.425.965 / 0001-08
STATE REGISTRATION:	20.485.828-3
SECTOR:	PRODUCTION OF NEW GENERATION BIOFUEL.
PATENT NO:	PCT/BR2019/05053, NATIONAL PHASE BR 11 2022 011447-8 A2
PATENT TITLE:	PROCESS, METHOD AND FORMULATIONS FOR THE PRODUCTION OF AN ALTERNATIVE FUEL BASED ON VEGETABLE, ANIMAL OR COMBINED OILS
ENVIRON. LICENSE No:	2018-122801 / TCE / LRO-0137
MAIN ACTIVITY:	PRODUCTION OF A RENEWABLE ALTERNATIVE FUEL BASED ON VEGETABLE OILS, BASED ON AN OIL/ALCOHOL COMBINATION PROCESS.
FINAL PRODUCT:	FUEL FOR DIESEL ENGINES (INDUSTRIAL AND AUTOMOTIVE USE), INDUSTRIAL AND AGRICULTURAL MACHINERY, BBL 100 (OUR 100% PRODUCT) AND/OR BBL X (IN SOME PERCENTAGE MIXED WITH DIESEL OIL).
PRODUCTION PROCESS:	MIXING SYSTEM IN TANKS
ADDRESS:	RUA MAJOR ANTÔNIO DELMIRO, 375, MACAÍBA-RN, BRAZIL
PLANT PRODUCTION:	5,000 LITERS PER HOUR UNTIL 100,000 LITERS PER HOUR
TECHNICAL MANAGER:	DR. ING. FRANCISCO WENDELL BEZERRA LOPES
	DR. ANDREA FESTUCCIA

Photo of the Macaiba BBL laboratory unit

3.1 COMPARATIVE PROCESS (BIODIESEL AND BBL BIOFUEL)

The main process for the production of ***conventional biodiesel is transesterification,*** through which vegetable oils obtained from seeds are transformed into fuel.

The process begins by mixing the initial vegetable oil with an alcohol (e.g., methanol, ethanol, propanol, butanol) and with catalysts of various types (acids, bases, or enzymes). During the transesterification process, a considerable amount of ***glycerin is separated from the vegetable oil (up to 10%), considered mainly as a by-product or residue of production***. 90% of the oil used in this process is therefore effectively transformed into traditional biodiesel. The most commonly used system in this process involves the use of methanol as the added alcohol and caustic soda as the catalyst. This process is shown in the functional block diagram shown below in Figure 1

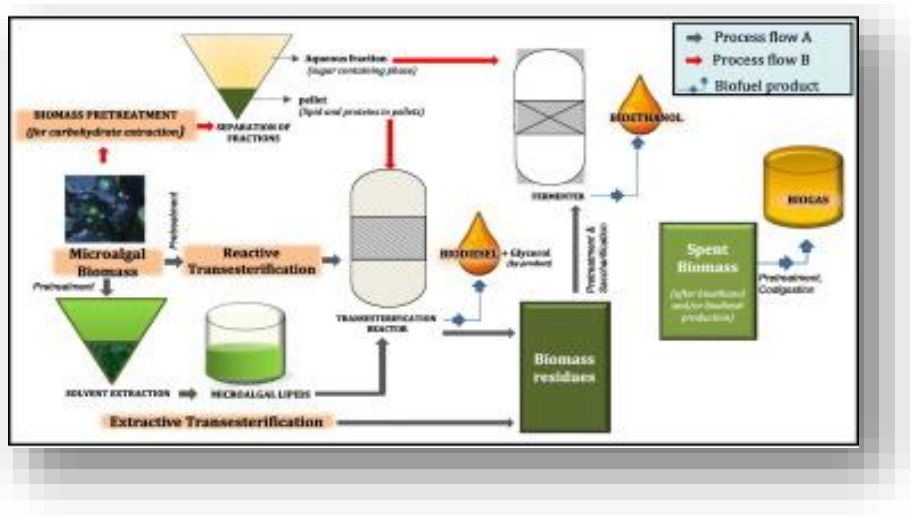

Figure 1 – Traditional Biodiesel (Transesterification Process)

3.2 OUR NEW BBL BIOFUEL TECHNOLOGY

Our BBL 100 process is definitely less complex than the one mentioned above, and with ***considerably lower implementation cost than traditional biodiesel***

Our technology requires a ***process of combining*** alcohols, commonly available on the market (in different percentages and mixing times) and vegetable oil (including frying oils, glycerine or mineral oils), ***producing a stable, superior quality and cost-effective renewable fuel than traditional Biodiesel.***

Unlike the latter, with our new technology glycerin is not removed, effectively eliminating any by-product problem, or industrial waste. The ***final product BBL 100 maintains the same characteristics and properties*** (including a balanced viscosity) under normal storage conditions for more than five years,

without the need for agitation and without insulation, even at atmospheric pressure. Figure 2 illustrates our BBL 100 process.

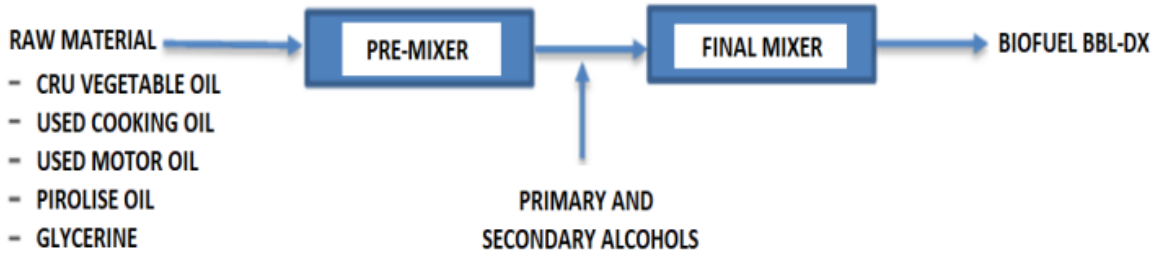

Figure 2 – Our new BBL 100 Biofuel production process

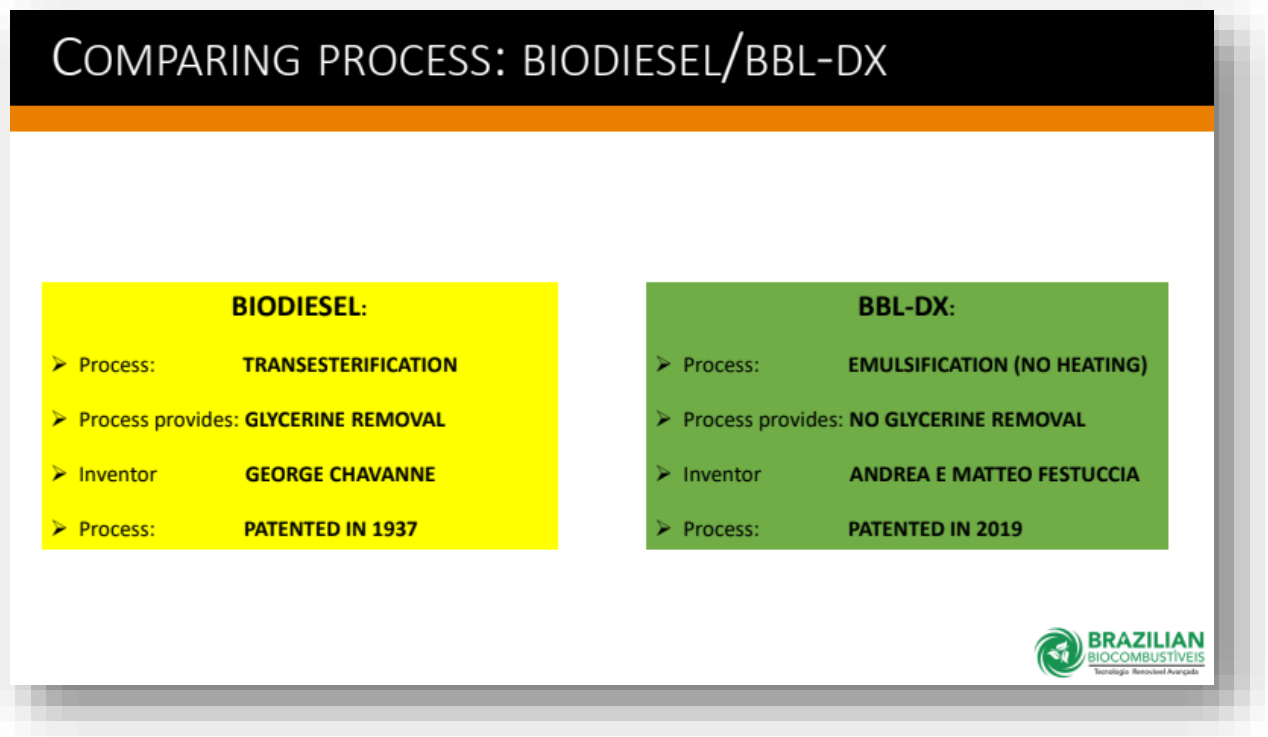

Table 2. Comparison process between our new BBL DX Biofuel and traditional Biodiesel

3.3. Main raw materials used by BBL 100 technology

The classes of ingredients used for the production of our biofuel are vegetable and/or animal oils, mineral or combined, also depleted or not intended for human consumption, regenerated and/or genetically modified, algae and microalgae and/or oils derived from them. These oils are added to primary and/or higher alcohols and/or primary and/or secondary glycols, which improve the performance and physicochemical characteristics of the final biofuel. The following are the ingredient classes at the base of the patent pending production process.

3.3.1 Vegetable oils

The vegetable oils and/or fatty substances contained are, in varying percentages, derived from seeds or fruits of plants. The most commonly used come from peanuts, sunflowers, soybeans, sesame, rapeseed and rapeseed, cotton and palm, olives and coconut. Currently, the cultivation of different plants is very widespread, from which vegetable oils are obtained for non-food use. By way of example and not reductive, we recall the oils obtained: jatropha, brassica, camelina, canola, castor bean, coconut, corn, cotton, karani, jojoba, kukui, castor bean, neem, palm, peanut, turnip, sunflower, sesame, soybean.

Used vegetable oil is a non-hazardous waste produced in homes, in the industrial catering sector, in fry shops, laboratories, restaurants, bars, hotels, catering, canteens. Vegetable or animal oil that reaches the end of its life cycle can undergo different treatments and be destined to face new transformations.

Waste oil recycling is a specific sector of waste recycling, and consists of a set of operations (filtration, dehydration, fractionation, final refining of the distillates obtained) that are carried out in lubricating oil or used vegetable oil, to obtain regenerated oils that can be used as a basis for the production process of our biofuel instead of unused vegetable oils. These oils range from a minimum of 35% by weight to a maximum of 75% by weight of the total BBL biofuel.

3.3.2 Alcohols and BBL additive (restricted information)

3.4 BBL's Strategies, in the current Brazilian legislation.

1. Production of SAF and Green Diesel in the Context of the "Fuels of the Future" Law

With the approval of the Brazilian **Law 14,993/24**, which is part of the national "Fuels of the Future" program, Brazil establishes a robust regulatory framework for **Sustainable Aviation Fuels (SAF)** and **GREEN DIESEL**, promoting the energy transition and the use of innovative technologies in the fuel sector.


Companies based abroad active in Italy:
Neste
World Kinect Corporation
Brazilian Biocombustíveis

Figure 15. Map of operators in the fuel supply chain participating in SAF questionnaires

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Name	Locations in Figure 15	Known activities related to SAF
Brazilian Biocombustíveis Ltda	*Abroad*	Production of biofuels in Brazil and ongoing set-up of logistics network in Italy
ENI S.p.A.	Roma, Livorno,	Production of SAF "ENI Biojet" from 2021 and

BBL's proprietary technology fully meets the parameters established by the new legislation for the production of SAF and green diesel. These products represent a significant evolution in the replacement of fossil fuels with renewable alternatives, providing environmental and economic benefits.

SAF Production: BBL is prepared to produce high-efficiency SAF, contributing to the decarbonization of the aviation sector. The regulation of the mandatory blend between fossil fuels and biofuels strengthens the company's role as a reliable and sustainable supplier, in line with local and international demands.

Green Diesel: A New Market Frontier of Green diesel, characterized by being 100% renewable and chemically similar to fossil diesel, is one of BBL's strategic focuses. Our technology allows the production of a high-quality biofuel, which meets the technical requirements **and parameters of** Law 14.993/24**, making it ideal for application in road transport and industrial sectors.**

Expansion into the European market: In addition to domestic production, BBL is part of the European program **"Roadmap for Sustainable Aviation Fuel",** coordinated by ENAC, which positions the company as a strategic bridge for the export of SAF and green diesel to the European market, meeting the sustainability goals of the European Union.

2. Authorization for the Use of Biofuels in Diesel Generators in Brazil

Complementing the SAF and green diesel production strategy, BBL also focuses on the authorization of biofuel for specific applications in diesel generators. This market represents a strategic niche, with a more agile regulatory process within the rules of the National Agency of Petroleum, Natural Gas and Biofuels (ANP).

Simplified Regulatory ProcessBBL's biofuel, initially intended for the partial or full replacement of diesel in generators, follows the guidelines of ANP Resolution No. 734/2018, with the following main steps:

1. Formal Request: Submission of an authorization request to the ANP with technical and legal documentation.
2. Compliance Tests: Conducting laboratory analyses and technical studies to validate the product.
3. Inspection and Authorization: Evaluation of production facilities by the ANP and issuance of the operating authorization.

Synergy with Green Diesel BBL Production plans, to expand the use of its biofuel, starting with applications in diesel generators and evolving to other markets, such as heavy transportation and industrial equipment. This incremental approach allows for a controlled and strategic entry into the Brazilian market.

Conclusion: BBL's Leadership in the Energy Transition

With two fronts of action – production of SAF (European and Brazilian Market) and GREEN DIESEL, regulated **by Law 14.993/24**, and authorization of biofuels for diesel generators in Brazil – **Brazilian Biocombustíveis Ltda. (BBL)** positions itself as a pioneer company in the sustainable fuels sector.

BBL's ability to serve both the local and international markets, coupled with alignment with Brazilian and European legislative initiatives, reinforces its commitment to sustainability and innovation. These strategies make BBL a key player in the global energy transition.

4. Tests and results

Below are excerpts from the numerous tests carried out in recent months with our BBL 100 (or BBL 50).

4.1 Electric Diesel Generator

Initially, tests were carried out with a Vonder GDV 5500 electric generator (on the side), leaving it in continuous operation with an average daily consumption of 11.5L of our BBL 100 biofuel, totaling approximately 2000 hours of tests.

During testing, no generator engine failures were detected.

After approximately 2000 hours of use, the engine was completely disassembled and analyzed internally, with special attention to the inspection of the fuel injector nozzles, not observing any wear, as can be seen in the images in Figure 3.

Figure 3 – Status of the injector nozzles of the Vonder GDV 5500 generator, after 2000 hours of operation with our BBL 100

In parallel with the visual tests, we also evaluated the analysis of emissions through the Environmental Quality Laboratory of the **Center for Gas Technology and Renewable Energies (CTGAS-ER),** confirming what the visual perception already indicated, i.e., that the presence of particulate matter is almost non-existent, since the emission concentrations (SOX and NOX) have also been very low, as shown in tables 4 and 5.

Figure 4 – Emission tests with CTGAS engineering in our laboratory unit, Macaíba (RN).

TABLE 2 – Emission values (SOx and NOx) per BBL D100.

ANALYSES PERFORMED	BBL D100	MAXIMUM LIMITS REQUIRED BY LEGISLATION
SOX Emission (ppm)	**13**	944
NOX Emission (ppm)	**32**	780

TABLE 3 – Emission values (CO and CO2) per BBL D100.

ANALYSES PERFORMED	BBL D100	DIESEL S10*
CO2 emission (%)	**0,7**	2,30
CO ppm emission	**490**	2400

*Average S10 emission values, source: https://siambiental.ucs.br/congresso/getArtigo.php?id=228&ano=_quarto

** These values refer to estimated emissions in parts per million (ppm) for a generator such as the **Vonder GDV 5500**, assuming that it operates close to the maximum limits established by CONAMA Resolution 382/2006. For accurate data, direct analysis of the gases with field measuring equipment is recommended.*

Based on CTGAS tests and average emission values of Diesel S10:

NO_x: BBL100 reduces emissions by approximately **96.4%**

SO_x: BBL100 reduces emissions by approximately **97.8%**

These data demonstrate the **exceptional environmental efficiency** of the BBL100 technology compared to fossil diesel, making it an extremely attractive solution for markets with emissions restrictions and energy transition policies.

4.2 SSANGYONG KYRON Diesel Vehicle (MERCEDES engine)

After testing the Vonder Diesel generator, we used our BBL D50 biofuel (50% our biofuel and 50% Diesel) for automotive testing, with the Korean SsangYong Kyron 2.0 4x4 KTPOB1KSAPC73099 vehicle (beside), with Mercedes engine, manufactured in 2010. The BBL D50 has been used continuously for about 12 months, for a total mileage of about 40,000 km on different types of terrain, at different speeds.

Also in this case, during the tests, no type of engine failure was observed and, after the tests, the engine was analyzed internally, with an inspection test on the fuel injectors and no report of wear, as can be seen in the images in figure 5.

Figure 5 – Visual test of car injectors after traveling approximately 40,000 km with BBL D50

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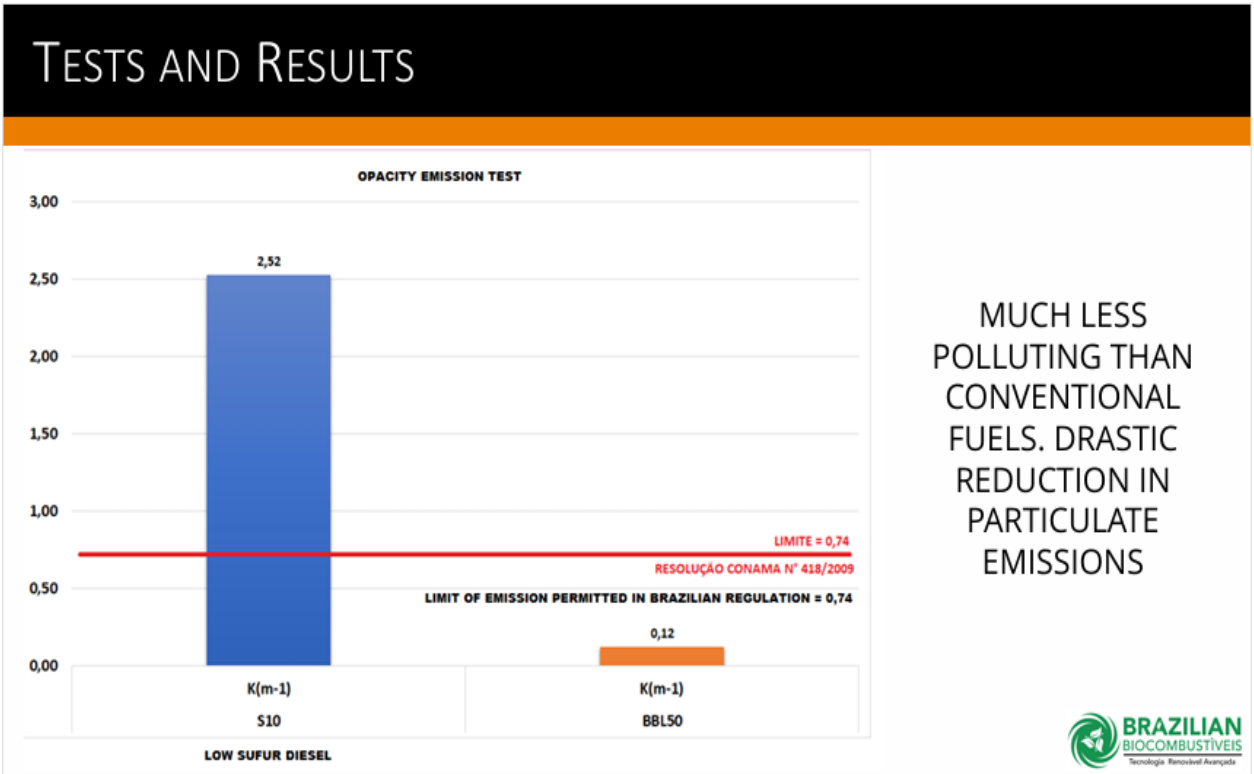
We also performed the exhaust gas opacity test by **INSPETRANS in Natal,** reporting values well below those required by current legislation (Table 8). The laboratory results highlight the substantial difference in values between the analysis carried out with the diesel additive (S10) currently on the market and our BBL 50 (mixture between 50% of our biofuel and 50% of the diesel additive on the market).

Photo vehicle emission testing at INSPETRANS (NATAL, BRAZIL)

TEST CARRIED OUT IN Inspectors – Nadal	**BBL 50**	**DIESEL FUEL (S10)**	MAXIMUM LIMIT REQUIRED BY BRAZILIAN LAW
Opacity Test ($^{m-1}$)	0,12	2.52	0,74

Table 8 - Comparison of emissions of the SsangYong Kyron 2.0 4x4 vehicle using BBL 50 and Diesel Additive (S10)



4.3 Performance Test (Dynamometer)

With the same vehicle, we carried out performance tests with a dynamometer at **the JM POWER CAR in Natal,** accredited by DETRAN, the first with Diesel S10 and the second with our new biofuel BBL 50 (50% additive). The data show (Table 9) that the two fuels with the same number of revolutions per minute (RPM) develop, on average, almost the same number of HPs, demonstrating no loss of power of BBL 50, compared to Diesel S10.

Car Dynamometer test at JM POWER CAR BOSH in Natal, Brazil

Table 9 Engine performance comparison between the Diesel Additive on the market and our BBL 50.

ANALYSIS CARRIED OUT AT JM POWER CAR NATAL	BBL D50 DATE 02.01.19	DIESEL S10 DATE 11.12.18
DYNAMOMETER TEST	3909 R.P.M. 128.0 HP	3959 R.P.M. 128.2 HP

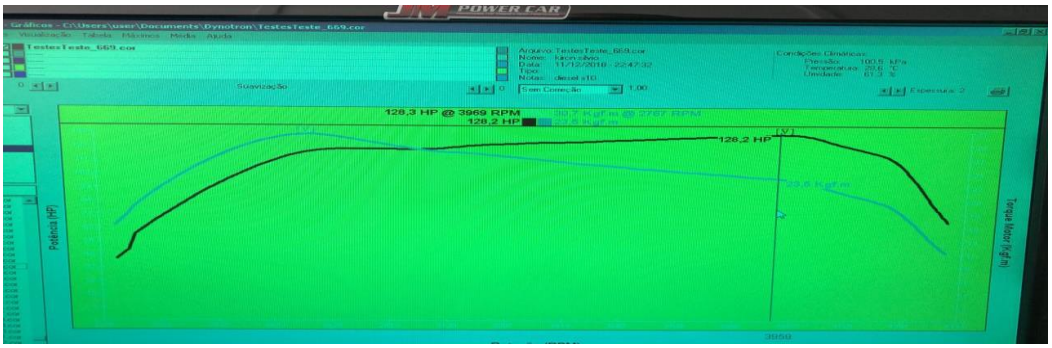


Figure 6, on top of the dynamometer test performed with Diesel S10 additive on the market on 12.11.2018

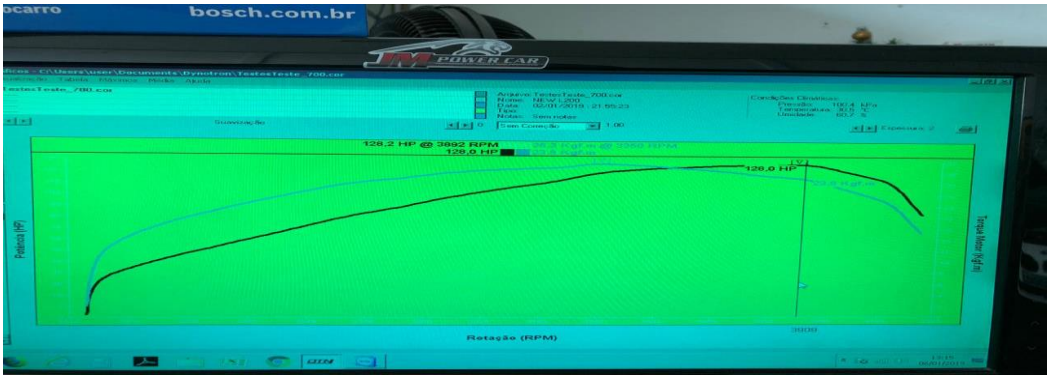


Figure 7 at the top of the dynamometer test performed with our BBL 50 Biofuel on 02.01.2019

4.4 Consumption Test

Finally, we carried out 2 fuel consumption tests (the same route with a full tank of 75 liters), the first with the S10 Diesel Additive, and the second with our BBL D50. The data show (see figure below) that using BBL 50 ***we obtained a consumption approximately 15% lower than the diesel additive S10 in the market.***

Table 10 – Consumption test (Diesel S10 vs. BBL 50)

FUEL CONSUMPTION SSANGYONG KYRON 2.0 VEHICLE CAR MODEL YEAR: 2010	BBL 50 DECEMBER 2018	DIESEL S10 DECEMBER 2018
75 LITERS	632.20 KM	548.70 KM

4.4.1. Fishing vessel

In November 2018, a test was carried out on the fishing vessel COOPA II (Figure FFF), belonging to Recanto do Mar Transportes Marítimos Ltda (CNPJ: 08.220.947/0001-10), with our BBL 50. The fishing vessel COOPA II conducted a four-hour test using our BBL 50 biofuel, consuming a total of 50 liters of fuel at different speeds, without any apparent engine malfunction or wear. During the entire period of use of our BBL 50, no type of loss of power was observed from the vessel, compared to the use of conventional diesel oil, as well as no variation in its consumption, in addition to a clear visual perception of the absence of particulate emissions throughout the route.

Same test and same good results in December 2018 with the NATUREZA TUR Tourist Boat in Barra de Cunhau, Rio Grande do Norte.

Fishing boat Coopa II.

5 BBL Human Resources

TECHNICAL TEAM AND KNOW HOW

CHEMICAL ENGINEERING
DR. ANDREA FESTUCCIA

- Non-Executive Chairman of BEESFREE, Inc.
- Technical Director of Ecosystems Srl
- Technical Director of Igeam Srl
- President of OPT Sensor SRL
- Executive Director of Recovery Technologies, Inc.
- Sênior Manager-EILIS Division of Altran Italia SpA.
- Former Technical Director of 3TI Progetti Italia SpA.
- Bachelor Degree in Chemical Engineering at AUR, Rome
- PHD in Chemistry at American University of Rome
- Consultant for NATO and Italian Government
- Holder of 4 patents in the area of Technology and Biofuels
- Inventor and developer of BBL-DX patent
- BBL-DX patent with 10 years of scientific development

CHEMICAL ENGINEERING
DR. FRANCISCO WENDELL

- Bachelor and Master Degree in Chemistry at UFRN
- PHD in Chemistry at Université du Sud, França.
- Senior Professor at UNP and UFRN University of Natal (RN)
- Researcher in national and international projects;
- Several articles published in scientific journals;
- New patent in the area of natural gas treatment;
- Advisor CREA/RN;
- Industrial Engineer in power plant producing alcohol;
- Chemical Engineer in environmental management company;
- Footwear industrial engineer;
- Expert in industrial chemical aste.

BRAZILIAN BIOCOMBUSTÍVEIS

Time

Roberto Pes (CEO)

International Management from James Cook University, Australia.

Andrea Festuccia (Eng. Químico)

Former researcher at La Sapienza University, Rome.

Prof. Wendell Lopes

Researcher and professor of chemical engineering of UFRN/UNP.

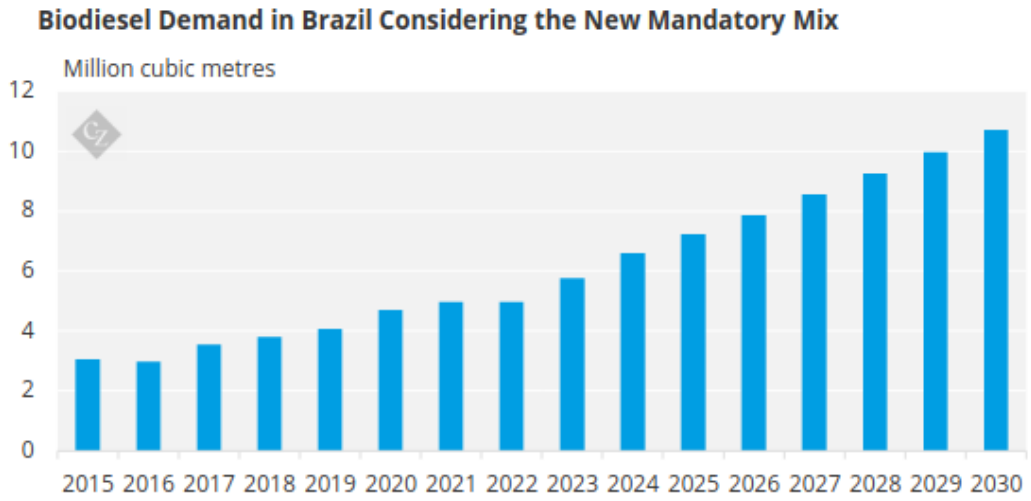
BRAZILIAN BIOCOMBUSTÍVEIS

6. Market

The introduction of higher mandatory blends, such as B14 in 2024, and the increase in diesel consumption, which reached 67.2 million m³ in 2024, contributed to this significant growth in biodiesel production.

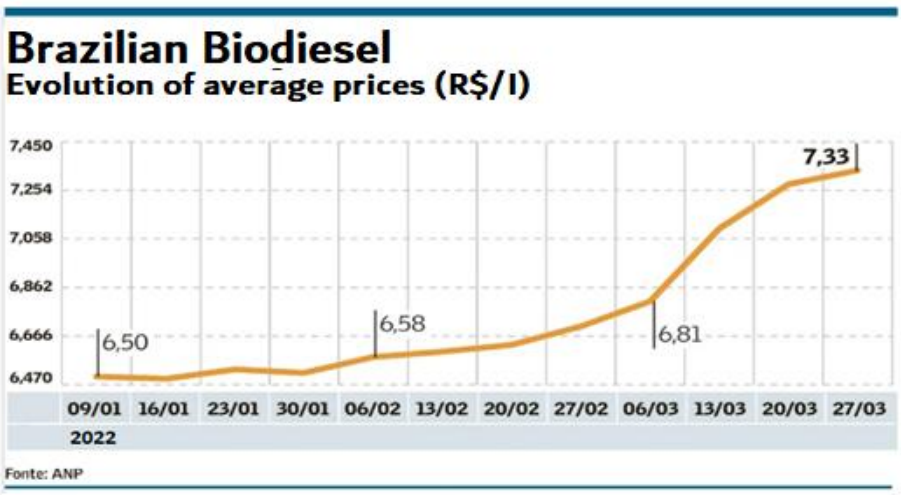
6.1 Future Prospects

With the B15 expected to be implemented in 2025, biodiesel production is expected to continue on an upward trajectory, consolidating Brazil as one of the world's leading biodiesel producers.



Biodiesel demand in Brazil, 2015-2030 (Ref. CZapp)

The growth in biodiesel production was not only dictated by macroeconomic events, but we believe that it is quite structural of the country's system. The current regulatory framework and the laws approved by the previous administration in March 2016 (Law 13.263/2016) have already led to government mandates that will oblige, as of March 2019, a widespread use of B10 with the possibility of moving to B15 in 2021, if the tests carried out on behalf of the National Energy Policy Council indicate this. All this makes Brazil consolidate itself as one of the largest biodiesel producing countries in the world.



7. **Market Share**

Analysts believe that the growth in industrial and commercial demand for efficient, cost-effective and clean biofuel will continue to support an ever-increasing production of the product. Sources from the Ministry of Mines and Energy (MME/EPE) predict that it will exceed 10 billion liters/year by 2025, with significant growth in the coming years (10% CAGR).

We believe that, with adequate investments in infrastructure, for each production unit, BBL can reasonably aspire to capture 0.2% of the Brazilian market in 2026 up to 0.5% for 2029. Table 11 presents the targets for the production of BBL 100. In the figure below we are only analyzing the Brazilian market at the moment.

	2026	2027	2028	2029
Target Market Cap (%)	0.2	0,3	0,4	0,5
Estimated production BBL (million/year) liters	200	300	400	500

Table 11 - BBL biodiesel production targets (m3/year). Estimated biodiesel production for 2025, 10 billion liters

7.1 OPERATIONAL INVESTMENTS – PLANT CAPACITY FOR SAF PRODUCTION, GREEN DIESEL AND ECONOMIC/FINANCIAL PROJECTIONS

7.1 Location

The new factory will be built in an Industrial Complex that can offer logistical advantages, with proximity to raw materials and export infrastructure, in the case of SAF production for the European market.

7.2 Plant Capacity (1 Plant)

- Phase 1: 12 million liters/year (2026).

- Phase 2: Scale to 500 million liters/year (2030).

7.3 Operational Plan

7.1 Major milestones

- **Acquisition and Licenses** (Q2 2026 – Q4 2026)

- **Construction and Installation of Equipment** (Q1 2026 – Q4 2026)

- **Production and pilot testing** (Q1 2026 – Q2 2026)

- **Launch of full-scale production** (Q3 2026)

7.4 Workforce

- Initial team: 30 employees, including engineers, chemists, and operational personnel.

- Training programs in partnership with local universities.

7.5 Average Profit Margins

- Gross Margin: 35%.

- Net Margin: 20%.

8. PRODUCTION COST – FINANCIAL PROJECTIONS WITH MINIMUM PRODUCTION FROM 12 MILLION LITERS

8.1 Production Cost and Selling Price

Production Cost Composition (approximate):

- Raw material (used or new vegetable oil, ethanol, BBL additive): 85%
- Industrial operation (energy, labor, maintenance): 10%
- Logistics and warehousing: 5%

Estimated production cost per liter: **R$ 3.60 to R$ 4.00 per liter**

Estimated Sale Price (2025 base):

Average price of biodiesel (B100) projected for 2025: **R$ 5.50 to R$ 6.00 per liter**

Estimated selling price of BBL 100 biofuel: **R$ 5.20 to R$ 5.50 per liter**, offering a higher competitive margin

8.2 Financial Projections - 5 Years

Year	Volume Produced (million liters)	Gross Revenue (R$)	Operating Profit (R$)
1	12	66.000.000,00	24.000.000,00
2	20	110.000.000,00	40.000.000,00
3	40	220.000.000,00	82.000.000,00
4	70	385.000.000,00	140.000.000,00
5	100	550.000.000,00	200.000.000,00

Considerations:

Estimated net operating margin: 25% to 35%

8.3 Investor Benefits

Regional Exclusive Licensing

Access to an internationally validated technology

10% participation in the sale of future licenses of BBL technology

Strengthening the image in ESG and energy transition

Pioneering positioning in the SAF market for Europe

9. Conclusion

BBL represents a real disruption in the biofuels market. With patented technology, validated by ENAC (Italy) for SAF, lower production cost than traditional biodiesel and proven environmental efficiency, we offer more than a product: we offer the future of renewable energy. The pilot plant is the showcase of a scalable and highly profitable model, ready for global replication. This plan invites the visionary investor to position themselves at the forefront of a booming industry, with attractive margins, rising returns, and royalties on future licenses. The time to turn clean energy into capital is now. Be part of this revolution.

ATTACHMENTS

EXPERIMENTAL UNIT (MACAÍBA, RN, BRAZIL)

Our existing facility was built in 2018 in the industrial area of Macaiba, RN (Brazil). The complex occupies a physical area of approximately 500 m². The complex has a potential production capacity of 2000 liters per hour, and was planned to be used only for quality and reliability tests of vehicular biofuels and equipment (see the photos below and the analysis of the biofuel tests in the attachments)

PATENT COOPERATION TREATY PCT/BR2019/050531

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF RECEIPT OF RECORD COPY

(PCT Rule 24.2(a))

To:

BRUNNER, Marcelo
Av. Brigadeiro Luis Antonio, 4329
01401-002 Sao Paulo - SP
BRÉSIL

Date of mailing *(day/month/year)*	**IMPORTANT NOTIFICATION**
12 December 2019 (12.12.2019)	
Applicant's or agent's file reference	International application No.
7269Brazilian	PCT/BR2019/050531

The applicant is hereby **notified** that the International Bureau has received the record copy of the international application as detailed below.

Name(s) of the applicant(s) and State(s) for which they are applicants:

BRAZILIAN BIOCOMBUSTIVEIS LTDA (all designated States)

International filing date: 10 December 2019 (10.12.2019)
Priority date(s) claimed: None
Date of receipt of the record copy by the International Bureau: 11 December 2019 (11.12.2019)
List of designated Offices:

AP: BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW
EA: AM, AZ, BY, KG, KZ, RU, TJ, TM
EP: AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR
OA: BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG
National: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

ATTENTION: The applicant should carefully check the data appearing in this Notification. In case of any discrepancy between these data and the indications in the international application, the applicant should immediately inform the International Bureau. **In addition, the applicant's attention is drawn to:**

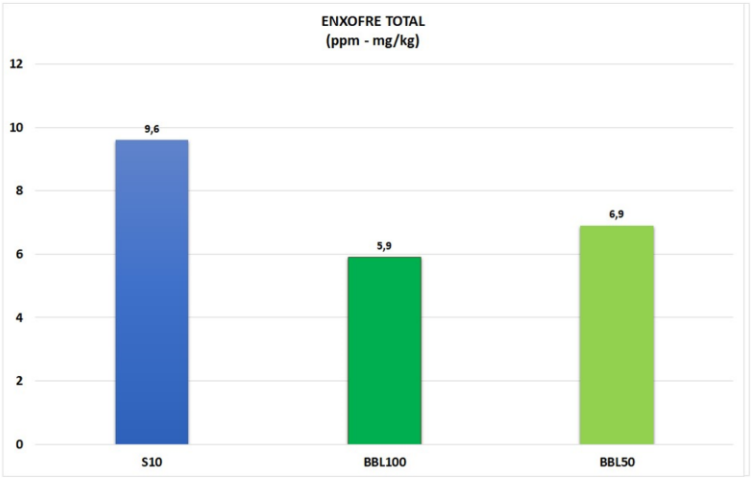
- time limits for entry into the national phase (see www.wipo.int/pct/en/texts/time_limits.htmland *PCT Applicant's Guide*, National Phase, especially Chapters 3 and 4)
- requirements regarding priority documents (if applicable) (see *PCT Applicant's Guide*, International Phase, paragraph 5.070)

A copy of this notification is being sent to the receiving Office and to the International Searching Authority.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Aymont Philippe e-mail pct.team9@wipo.int Telephone No. +41 22 338 74 09

Form PCT/IB/301 (July 2010) 1/J3C5MVQJUH6HZ0

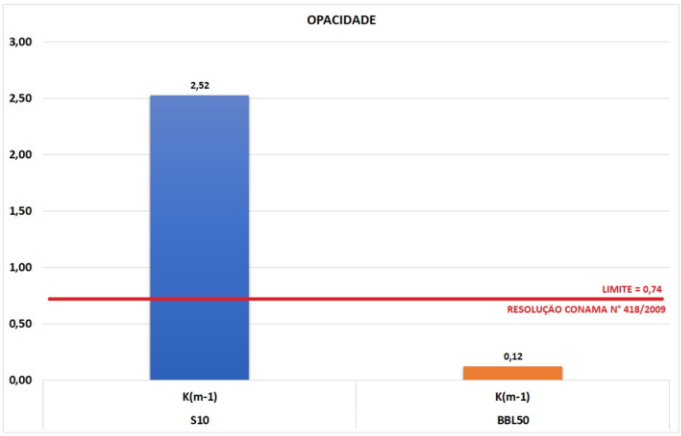
TESTS AND RESULTS



LESS POLLUTING THAN ANY CONVENTIONAL FUELS.

BRAZILIAN BIOCOMBUSTÍVEIS
Tecnologia Renovável Avançada

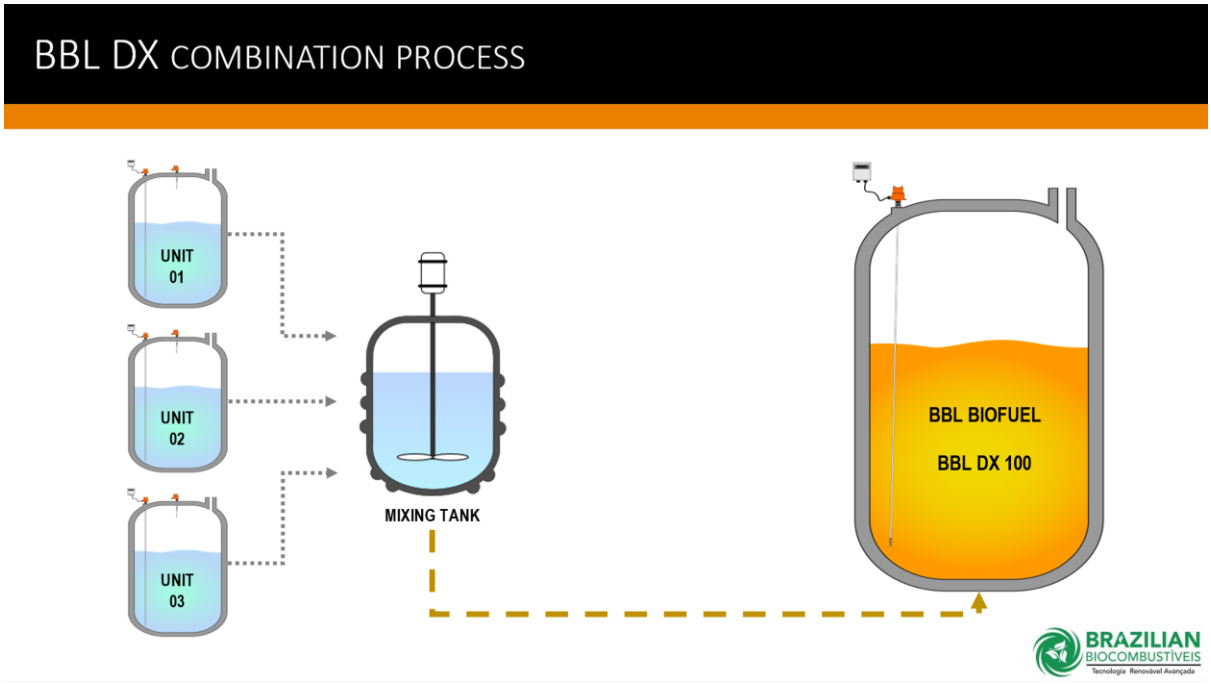
TESTS AND RESULTS



LESS POLLUTING THAN CONVENTIONAL FUELS. DRASTIC REDUCTION IN PARTICULATE EMISSIONS.

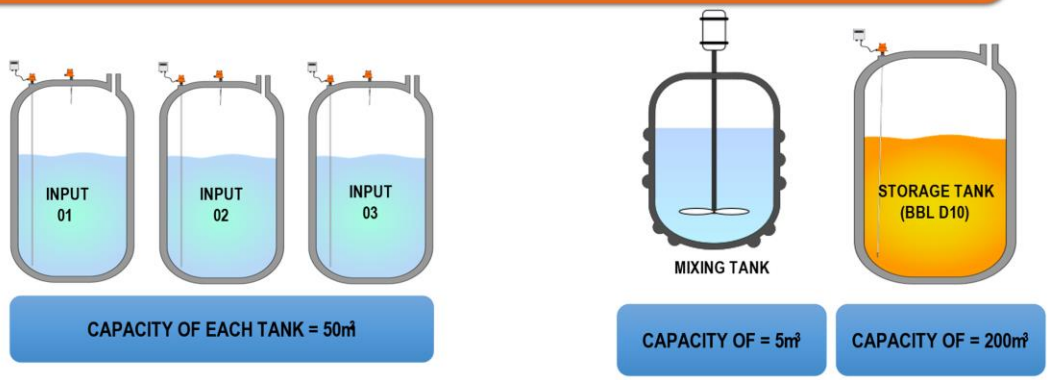
BRAZILIAN BIOCOMBUSTÍVEIS
Tecnologia Renovável Avançada

Table 14 – Model of the production process of the microproject unit



OUR BIOFUEL PRODUCTION BBL D100

BASIC FACTORY
(PRODUCTION CAPACITY OF: 1m³/h = 160m³/month = 1.900.000 L/year)
(SIZING FOR 1 MONTH PRODUCTION



REPÚBLICA FEDERATIVA DO BRASIL
MJ - DEPARTAMENTO DE POLÍCIA FEDERAL
DIREX - DIRETORIA-EXECUTIVA
DIVISÃO DE CONTROLE DE PRODUTOS QUÍMICOS

CERTIFICADO DE LICENÇA DE FUNCIONAMENTO

Nº: 201841510-1 VENCIMENTO: 27/02/2019

RAZÃO SOCIAL: BRAZILIAN BIOCOMBUSTIVEIS LTDA

ENDEREÇO: AV. MAJOR ANTONIO DELMIRO - 375 - ALFREDO MESQUITA - QUADRA0007 LOTE 2667 - MACAÍBA - RN

CNPJ: 29.425.965/0001-08 INSCRIÇÃO ESTADUAL: 204858283

ATIVIDADE: Fabricação de biocombustíveis, exceto álcool CNAE: 1932-2/00

CRC: 2018/041785 GRUPO: 01

Brasília/DF, 27/FEVEREIRO/2018

Certifico que a empresa acima identificada está autorizada a exercer atividades com produtos químicos sujeitos a controle e fiscalização, nos termos previstos na Lei nº 10.357, de 27 de dezembro de 2001.
UNIDADE: SR/DPF/RN
PROTOCOLO:08420.001770/2018-78
1ª VIA

TARCISIO MEDEIROS NOGUEIRA FERNANDES
DELEGADO DE POLICIA FEDERAL
NUCOPE/DCPQ/DIREX/DPF
Matrícula Nº: 16655

Prefeitura Municipal de Macaíba
Secretaria Municipal de Tributação

ALVARÁ DE LICENÇA PARA LOCALIZAÇÃO E FUNCIONAMENTO

Validade:	Concedido a:
31/12/2018	BRAZILIAN BIOCOMBUSTÍVEIS LTDS

CPF/CNPJ:	Inscrição Municipal:	Início da atividade:
29.425.965/0001-08	003.014-7	12/2017

Endereço / Logradouro:
RUA MAJ ANTONIO DELMIRO,375
ALFREDO MESQUITA 59280-000

ISS - Regime:	TLF - Regime:	PUBLICIDADE - Regime:
4 - NAO INCIDE	1 - NORMAL	1 - NORMAL
ISS - Vigência:	TLF - Vigência:	PUBLICIDADE - Vigência:

VIGILÂNCIA SANITÁRIA - Regime:	VIGILÂNCIA SANITÁRIA - Vigência:
2 - NAO INCIDE	

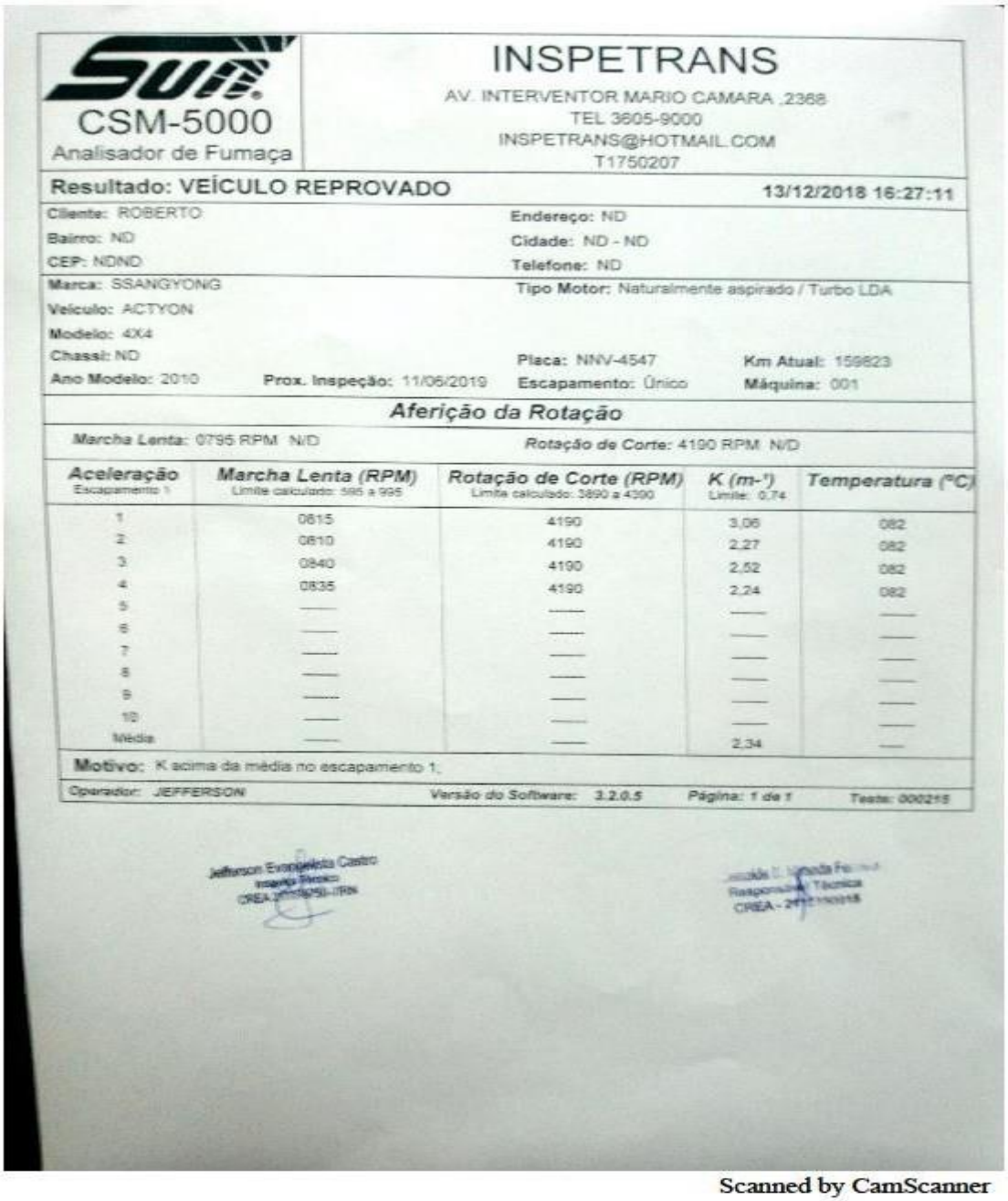
ATIVIDADE CNAE - TLF:

Código:	Descrição:
C1932-2/000	FABRICACAO DE BIOCOMBUSTIVEIS, EXCETO ALCOOL

ATIVIDADE CNAE - OUTRAS:

Código:	Descrição:
C19225002	RERREFINO DE OLEOS LUBRIFICANTES
C20622000	FABRICACAO DE PRODUTOS DE LIMPEZA E POLIMENTO
N81290000	ATIVIDADES DE LIMPEZA NAO ESPECIFICADAS ANTERIORMENTE

Data da Elaboração:	CÓDIGO PARA VALIDAÇÃO ==>
20/JUNHO/2018 13:02:57	WUKK12899



CSM-5000
Analisador de Fumaça

INSPETRANS

AV. INTERVENTOR MARIO CAMARA ,2368
TEL 3605-9000
INSPETRANS@HOTMAIL.COM
T1750207

Resultado: VEÍCULO REPROVADO 13/12/2018 16:27:11

Cliente: ROBERTO
Endereço: ND
Bairro: ND
Cidade: ND - ND
CEP: NDND
Telefone: ND

Marca: SSANGYONG
Veículo: ACTYON
Modelo: 4X4
Chassi: ND
Tipo Motor: Naturalmente aspirado / Turbo LDA
Ano Modelo: 2010
Prox. Inspeção: 11/06/2019
Placa: NNV-4547
Escapamento: Único
Km Atual: 159823
Máquina: 001

Aferição da Rotação

Marcha Lenta: 0795 RPM N/D
Rotação de Corte: 4190 RPM N/D

Aceleração (Escapamento 1)	Marcha Lenta (RPM) (Limite calculado: 595 a 995)	Rotação de Corte (RPM) (Limite calculado: 3890 a 4390)	K (m-1) (Limite: 0,74)	Temperatura (°C)
1	0815	4190	3,06	082
2	0810	4190	2,27	082
3	0840	4190	2,52	082
4	0835	4190	2,24	082
5	----	----	----	----
6	----	----	----	----
7	----	----	----	----
8	----	----	----	----
9	----	----	----	----
10	----	----	----	----
Média	----	----	2,34	----

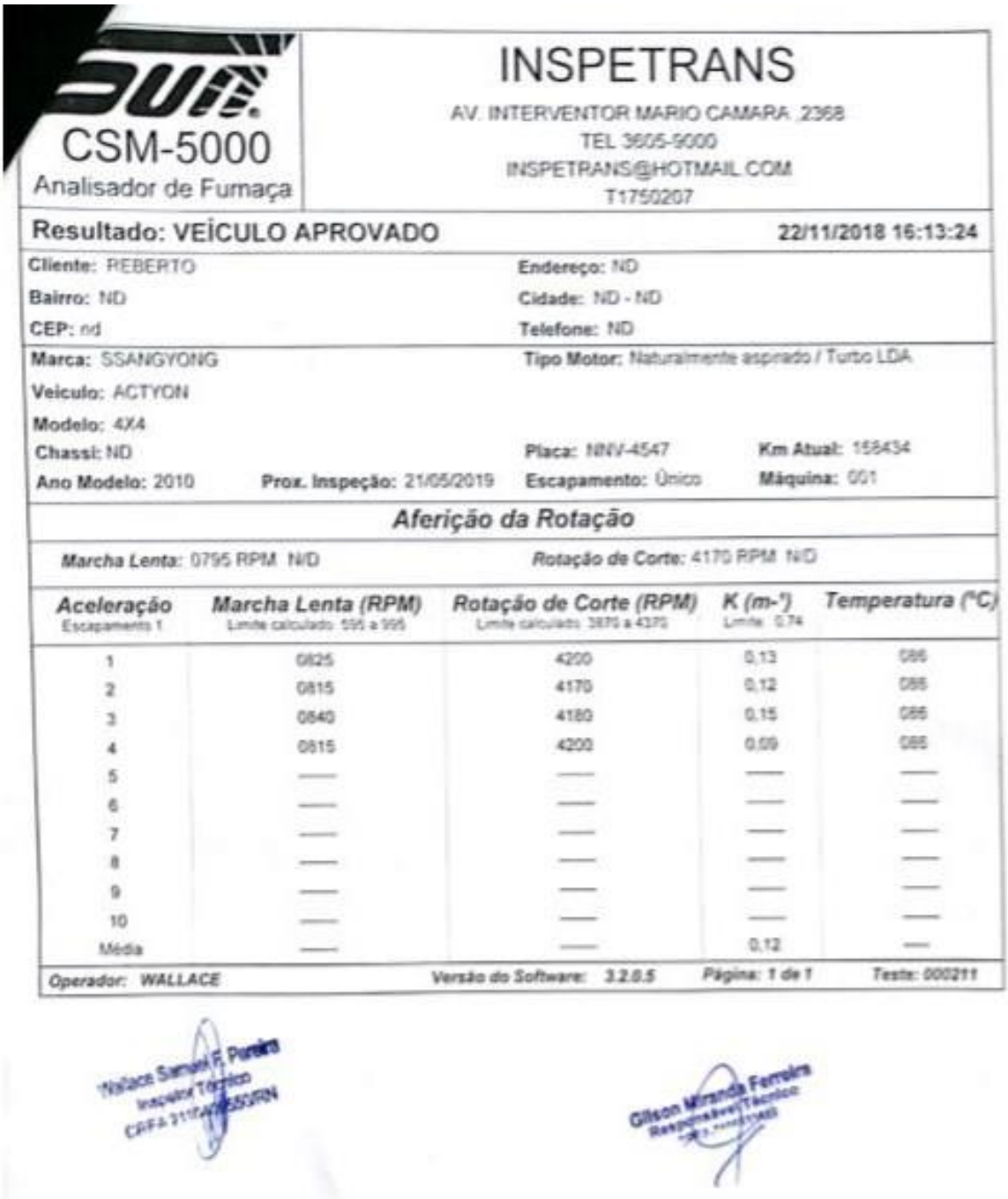
Motivo: K acima da média no escapamento 1;

Operador: JEFFERSON Versão do Software: 3.2.0.5 Página: 1 de 1 Teste: 000215

Jefferson Evangelista Castro
Insp. Técnico
CREA-[illegible]-TRN

Responsável Técnica
CREA - [illegible]

Scanned by CamScanner



CSM-5000
Analisador de Fumaça

INSPETRANS

AV. INTERVENTOR MARIO CAMARA 2368
TEL 3605-9000
INSPETRANS@HOTMAIL.COM
T1750207

Resultado: VEÍCULO APROVADO 22/11/2018 16:13:24

Cliente: REBERTO
Endereço: ND
Bairro: ND
Cidade: ND - ND
CEP: nd
Telefone: ND

Marca: SSANGYONG
Tipo Motor: Naturalmente aspirado / Turbo LDA
Veículo: ACTYON
Modelo: 4X4
Chassi: ND
Placa: NNV-4547
Km Atual: 158434
Ano Modelo: 2010
Prox. Inspeção: 21/05/2019
Escapamento: Único
Máquina: 001

Aferição da Rotação

Marcha Lenta: 0795 RPM N/D
Rotação de Corte: 4170 RPM N/D

Aceleração Escapamento 1	*Marcha Lenta (RPM)* Limite calculado: 595 a 995	*Rotação de Corte (RPM)* Limite calculado: 3870 a 4370	*K (m-¹)* Limite: 0.74	*Temperatura (°C)*
1	0825	4200	0,13	086
2	0815	4170	0,12	086
3	0840	4180	0,15	086
4	0815	4200	0,09	086
5	—	—	—	—
6	—	—	—	—
7	—	—	—	—
8	—	—	—	—
9	—	—	—	—
10	—	—	—	—
Média	—	—	0,12	—

Operador: WALLACE *Versão do Software:* 3.2.0.5 *Página:* 1 de 1 *Teste:* 000211

Wallace Samuel F. Pereira
Inspetor Técnico

Gilson Miranda Ferreira
Responsável Técnico

Universidade Federal do Rio Grande do Norte
Instituto de Química
Laboratório de Combustíveis e Lubrificantes - LCL
Av. Senador Salgado Filho, s/n, Campus Universitário
Natal-RN - CEP: 59078-970 Fone:
(84) 3211 9240

RELATÓRIO DE ENSAIO
Nº0087/2018

Cliente: Brazilian Biocombustíveis LTDA		**Número do Orçamento:** 0051/2018
Endereço: Av. Major Antônio Delmiro, Quadra 0007, Lote 2665, Alfredo Mesquita		
Município: Macaíba	**Estado:** RN	**CEP:** 59280-000

Identificação da Amostra: B-100	**Código da Amostra:** TERC 00122/18
Data de Coleta: -	**Data de Recebimento:** 20/11/2018
Produto: Óleo de soja	
Responsável pela Entrega: Francsico Wendell Bezerra Lopes	

CARACTERÍSTICA		RESULTADO	ESPECIFICAÇÃO	MÉTODO
Aspecto Visual		Límpido e isento de impurezas	-	NBR 14954
Cor visual		Amarelo	-	Visual
Massa específica a 20 °C, kg/m³		874,5	-	ASTM D4052
Ponto de fulgor, °C		22,5		ASTM D56
Enxofre total, mg/kg		5,9	-	ASTM D7220
Destilação, °C	10% Recuperados	-	-	ASTM D86
	50% Recuperados	-	-	
	85% Recuperados	-	-	
	90% Recuperados	-	-	
	95% Recuperados	-	-	
Teor de Água, mg/kg		1.343	-	D6304 EN ISO 12937
Estabilidade à oxidação, h		10,2	-	EN15751

Conclusões:
-

Observações:
O LCL-UFRN não é responsável pela coleta da amostra em questão.

Signatário Autorizado

Nome: Jilliano Benigno da Silva	
Função: Gerente da Qualidade	
Período dos Ensaios: 23/11/2018 a 29/11/2018	
Data de Emissão: 30/11/2018	**Nº do CRQ 15100283 – 15ª Região**

Universidade Federal do Rio Grande do Norte
Instituto de Química
Laboratório de Combustíveis e Lubrificantes - LCL
Av. Senador Salgado Filho, s/n, Campus Universitário
Natal-RN - CEP: 59078-970
Fone: (84) 3211 9240

RELATÓRIO DE ENSAIO
Nº0088/2018

Cliente: Brazilian Biocombustíveis LTDA		**Número do Orçamento:** 0051/2018
Endereço: Av. Major Antônio Delmiro, Quadra 0007, Lote 2665, Alfredo Mesquita		
Município: Macaíba	**Estado:** RN	**CEP:** 59280-000

Identificação da Amostra: B-50	**Código da Amostra:** TERC 00123/18
Data de Coleta: -	**Data de Recebimento:** 20/11/2018
Produto: Óleo de soja	
Responsável pela Entrega: Francsico Wendell Bezerra Lopes	

CARACTERÍSTICA		RESULTADO	ESPECIFICAÇÃO	MÉTODO
Aspecto Visual		Límpido e Isento de Impurezas	-	NBR 14954
Cor visual		Amarelo	-	Visual
Massa especifica a 20 °C, kg/m³		852,7	-	ASTM D4052
Ponto de fulgor, °C		24,5		ASTM D56
Enxofre total, mg/kg		6,9	-	ASTM D7220
Destilação, °C	10% Recuperados	115,8	-	ASTM D86
	50% Recuperados	277,3	-	
	85% Recuperados	315,7	-	
	90% Recuperados	341,8	-	
	95% Recuperados	345,8	-	
Teor de Água, mg/kg		4.788	-	D6304 EN ISO 12937
Estabilidade à oxidação, h		6,3	-	EN15751

Conclusões:
-

Observações:
O LCL-UFRN não é responsável pela coleta da amostra em questão.

Signatário Autorizado

Nome: Jilliano Benigno da Silva	Nº do CRQ 15100283 – 15º Região
Função: Gerente da Qualidade	
Período dos Ensaios: 23/11/2018 a 29/11/2018	
Data de Emissão: 30/11/2018	

Universidade Federal do Rio Grande do Norte
Instituto de Química
Laboratório de Combustíveis e Lubrificantes - LCL
Av. Senador Salgado Filho, s/n, Campus Universitário
Natal-RN - CEP: 59078-970
Fone: (84) 3211 9240

RELATÓRIO DE ENSAIO
Nº0092/2018

Cliente: Brazilian Biocombustíveis LTDA		**Número do Orçamento:** 0053/2018
Endereço: Av. Major Antônio Delmiro, Quadra 0007, Lote 2665, Alfredo Mesquita		
Município: Macaíba	**Estado:** RN	CEP: 59280-000

Identificação da Amostra: B-4	**Código da Amostra:** TERC 00131/18
Data de Coleta: -	**Data de Recebimento:** 14/12/2018
Produto: Mix de diesel + biodiesel	
Responsável pela Entrega: Francsico Wendell Bezerra Lopes	

CARACTERÍSTICA	RESULTADO	ESPECIFICAÇÃO	MÉTODO
Massa específica a 20 °C, kg/m³	847,7	-	ASTM D4052
Ponto de fulgor, °C	-		ASTM D56
Enxofre total, mg/kg	<LQ*	-	ASTM D7220
Teor de Água, mg/kg	2.263,3	-	D6304 EN ISO 12937

*LQ = 3,0 mg/kg

Conclusões:
-

Observações:
O LCL-UFRN não é responsável pela coleta da amostra em questão.

Signatário Autorizado

Nome: Jilliano Benigno da Silva	
Função: Gerente da Qualidade	
Período dos Ensaios: 14/12/2018 a 18/12/2018	
Data de Emissão: 18/12/2018	**Nº do CRQ 16100283 – 16ª Região**

Governo do Estado do Rio Grande do Norte
Secretaria de Estado do Meio Ambiente e Recursos Hídricos
Instituto de Desenvolvimento Sustentável e
Meio Ambiente do Rio Grande do Norte

Rondinelle Silva
Diretor Geral

IDEMA
INSTITUTO DE DESENVOLVIMENTO SUSTENTÁVEL E MEIO AMBIENTE DO RIO GRANDE DO NORTE
AC 12284
SELO DE AUTENTICIDADE

Licença de Regularização de Operação

Nº 2018-122801/TEC/LRO-0137

O Instituto de Desenvolvimento Sustentável e Meio Ambiente do Rio Grande do Norte, com fundamento na Lei complementar Estadual - LCE nº. 272, de março de 2004 e suas posteriores alterações, Legislação Federal e, ainda, consubstanciado no Parecer Técnico fundamentado, dentre outros, constante dos **Autos Processuais nº 2018-122801/TEC/LRO-0137**,ao Empreendedor infraidentificado, sob as condições abaixo relacionadas, cujo descumprimento implicará falta de natureza grave, acarretando a suspensão automática da presente licença..

IDENTIFICAÇÃO DO EMPREENDEDOR E EMPREENDIMENTO

Nome do Empreendedor:	BRAZILIAN BIOCOMBUSTIVEIS LTDA
CPF/CNPJ:	29.425.965/0001-08
I.E.:	
Proprietário do Empreendimento:	
Endereço do Empreendedor:	Av.Major Antonio Delmiro,nº 375, Quadra 007, Lote 2667, Alfredo Mesquita, Macaiba/RN
Endereço do Empreendimento:	Av.Major Antonio Delmiro,nº 375, Quadra 007, Lote 2667, Alfredo Mesquita, Macaiba/RN
Caracterização do Empreendimento:	Indústria Recicladora de resíduos oleosos com objetivo de transformá-los em Biocombustíveis. Com área total de 433,4 m², sendo 254,14 m² de área destinada a produção e 78 m² de área destinada a administração.

CONDICIONANTES

1. O IDEMA aprova através deste ato administrativo, a VIBIALIDADE AMBIENTAL solicitada pelo empreendedor, cuja veracidade das informações apresentadas, os estudos, projetos e demais documentos subscritos por esses, são de sua total responsabilidade, sujeitando-se às sanções administrativas, civis e penais. Em caso de constatação de dados falsos, enganosos ou capazes de indução ao erro, esta Licença fica automaticamente anulada;

2. O empreendedor fica ciente de que a presente licença está sendo concedida com base nas informações apresentadas pelo interessado, cuja operação e recomendações do IDEMA devem ser cumpridas rigorosamente, devendo qualquer alteração ser comunicada para prévia análise deste Instituto. Esta Licença não dispensa ou substitui quaisquer alvarás ou certidões, de qualquer natureza, porventura exigidos pelas Legislações Federal, Estadual ou Municipal;

3. O empreendedor é responsável pela preservação ambiental do empreendimento, devendo tomar medidas preventivas e de mitigação contra a ocorrência de acidentes/incidentes que possam causar danos ambientais, como também controlar os impactos negativos de sua atividade. Em caso de ocorrências com dano ambiental deverão ser tomadas medidas corretivas imediatamente e comunicar ao IDEMA;

4. O empreendedor deve abster-se de lançar esgoto sanitário e qualquer tipo de efluente líquido no solo, a menos que sejam submetidos a tratamento que possibilitem o uso para irrigação, mediante projeto aprovado por este Órgão;

5.O empreendedor é responsável em adotar medidas preventivas de combate a princípio de incêndios em conformidade com a legislação PERTINENTE e as normas técnicas aplicáveis, sendo obrigado a manter o AVCB – Atestado de Vistoria do Corpo de Bombeiro VÁLIDO, no estabelecimento, em local visível, para fins de fiscalização, tendo ciência que é competência dessa instituição: as vistorias, inspeções nas instalações do Empreendimento e nos demais equipamentos referentes a combate a incêndio e sua aprovação;

6.O empreendedor só pode proceder à limpeza das fossas sépticas através de empresas limpa-fossas devidamente licenciadas por este Instituto e deverá fazer constar na tampa das mesmas, informações, tais como: data de instalação, volume e período entre limpezas;

7.O empreendedor fica ciente de que os níveis de ruídos gerados pelas atividades desenvolvidas no empreendimento devem atender o que estabelece a Lei Estadual nº 6.621/1994, que dispõe sobre o controle da poluição sonora e condicionantes do meio ambiente no Estado do Rio Grande do Norte e dá outras providências;

8. O empreendedor deve apresentar, em um prazo de 120 (cento e vinte) dias, o Plano de Gerenciamento de Resíduos Sólidos (PGRS), com base na Lei 12.305/2010 e demais instrumentos normativos, devendo apresentar detalhamento em forma de planilha todos os resíduos, inclusive os perigosos contemplando: geração de resíduos, acondicionamento, coleta e transporte, reaproveitamento e tratamento e disposição final. Deve também, atender as diretrizes da Seção V, Art. 21 da referida Lei, ficando ainda ciente de que não é permitido, em hipótese alguma, o acúmulo a céu aberto em áreas interna ou externa ao empreendimento, mesmo em caso de emergência, devendo colocá-los em local de fácil limpeza e fora do alcance de animais, para evitar que o mesmo seja violado até ser recolhido e/ou enviado para local ambientalmente adequado;

9.O empreendedor deverá manter o Alvará de Funcionamento do Empreendimento, ATUALIZADO;

10.O empreendedor deverá apresentar semestralmente a este instituto a análise do teor de óleos e graxas do efluente após tratamento na caixa separadora;

Avenida Almirante Alexandrino de Alencar, 1701, Tirol, Natal-RN
CEP 59015-350, Natal-RN, Tel (84)3232-2110 / 2111- Fax (84)3232-1970
Inscrição no CNPJ (MF) 08.242.166/0001-26
Website: http://www.idema.rn.gov.br | e-mail: idema@rn.gov.br

CONDICIONANTES

11.O empreendedor deve no prazo de 90 (noventa) dias, colocar a placa indicativa do empreendimento licenciado, conforme modelo disponível no site www.idema.rn.gov.br/, acessando o menu "Licenciamento", opção "Documentação Exigida",item nº 16 "Publicação de Licença Ambiental em Placa (1)", apresentando ao IDEMA o cumprimento desta, através do registro fotográfico;

12.O empreendedor deve publicar a concessão desta Licença no Diário Oficial do Estado, em periódico regional ou local de grande circulação ou ainda em meio eletrônico de comunicação mantido pelo órgão ambiental competente, conforme Parágrafo 1º do Art. 20 da Lei Complementar Federal nº 140/2011, devendo encaminhar cópia comprobatória a este Instituto, no prazo máximo de 10 (dez) dias, contados a partir da data de recebimento desta Licença;

13. O empreendedor deverá comunicar ao Órgão ambiental a suspensão ou o encerramento da atividade acompanhada de um Plano de Desativação que contemple a situação ambiental existente; se for o caso, informar a implementação das medidas de restauração e de recuperação da qualidade ambiental das áreas que serão desativadas ou desocupadas, em atendimento ao Art. 53 da Lei Complementar Estadual nº 272, de 03 de Março de 2004, e;

14. A presente licença tem validade de 2 (dois) anos a partir da data de sua emissão, cuja continuidade da atividade fica condicionada a solicitação da licença subsequente, de acordo com o que rege a Lei Estadual Complementar 272, de 03 de março de 2004, no seu artigo 50.

Natal (RN), 09/11/2013

Maria do Carmo Clemente
Coordenadora de Meio Ambiente

Rondinelle Silva Oliveira
Diretor Geral

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EMISSIONS VALUES ISSUED (SOx and NOx) for BBL-D100.

ANALYSIS CARRIED OUT	BBL-D100	MAXIMUM LIMIT REQUIRED BY LEGISLATION
SOx Emissions (ppm)	13	944
NOx Emissions (ppm)	32	780

EMISSIONS VALUES ISSUED (CO and CO_2) for BBL- D100.

ANÁLISES REALIZADAS	BBL D100	COMMON DIESEL S10*
CO2 Emissions (%)	0,7	2,30
CO Emissions (ppm)	490	2400

enac

Name	Locations in Figure 15	Known activities related to SAF
Brazilian Biocombustiveis Ltda	*Abrood*	Production of biofuels in Brazil and ongoing set-up of logistics network in Italy
ENI S.p.A.	Roma, Livorno, Taranto, Venezia, Gela.	Production of SAF "ENI Biojet" from 2021 and distribution at various airports in Italy (treatment of vegetable waste, waste oils and biomass in Gela plant and refining in Livorno plant). Other co-processing activities in Taranto plant. Promoter with Airports of Rome of the "Pact for the decarbonisation of air transportation"
EWABA (European Waste-based & Advanced Biofuels Association)	*Abrood*	Promotion at European level of policies to ensure a fair regulatory framework that can support production and use of biofuels
Italiana Petroli S.p.A.	Roma, Falconara Marittima (AN)	Research activities and adaptation of logistics
Nautilus Aviation S.p.A.	Palermo	-
Neste Oyj	*Abrood*	Production of SAF for over 10 years and with annual volume of about 100,000 tons
NextChem S.p.A.	Roma	Initiatives to produce SAF from waste gasification in Europe and worldwide. Through the subsidiary MyRechemical, process design consulting and feasibility studies for the integration of Waste-to-Syngas technologies.
SERAM S.p.A.	Roma	-
Total Energies Italia S.p.A.	Milano	Production of SAF in France from 2021 and regular supply at Le Bourget airport. In 2021, supply for flight tests with pure SAF of an Airbus helicopter with Safran engine and A321 Neo aircraft.
UNEM (Unione Energie per la Mobilità)	Roma	Support for policies to encourage the promotion and development of Low Carbon Fuels (LCFs)
World Kinect Corporation	*Abrood*	Distribution of SAF to customers in France, UK, Germany. Agreement with NESTE to increase supply of SAF in Europe (May 2023)

Table 5. Activity for SAF conducted by participating operators of fuel supply chain

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