ECO ENERGIES

EESHA KISHAN

PRIVATE LIMITED

CII's 14th Edition – Conference on Alternate Fuels & Raw Material Usage (AFR)

23rd-24th October 2024

Courtyard by Marriott , Raipur – Chattigarh

Booth No 5

Confederation of Indian Industry

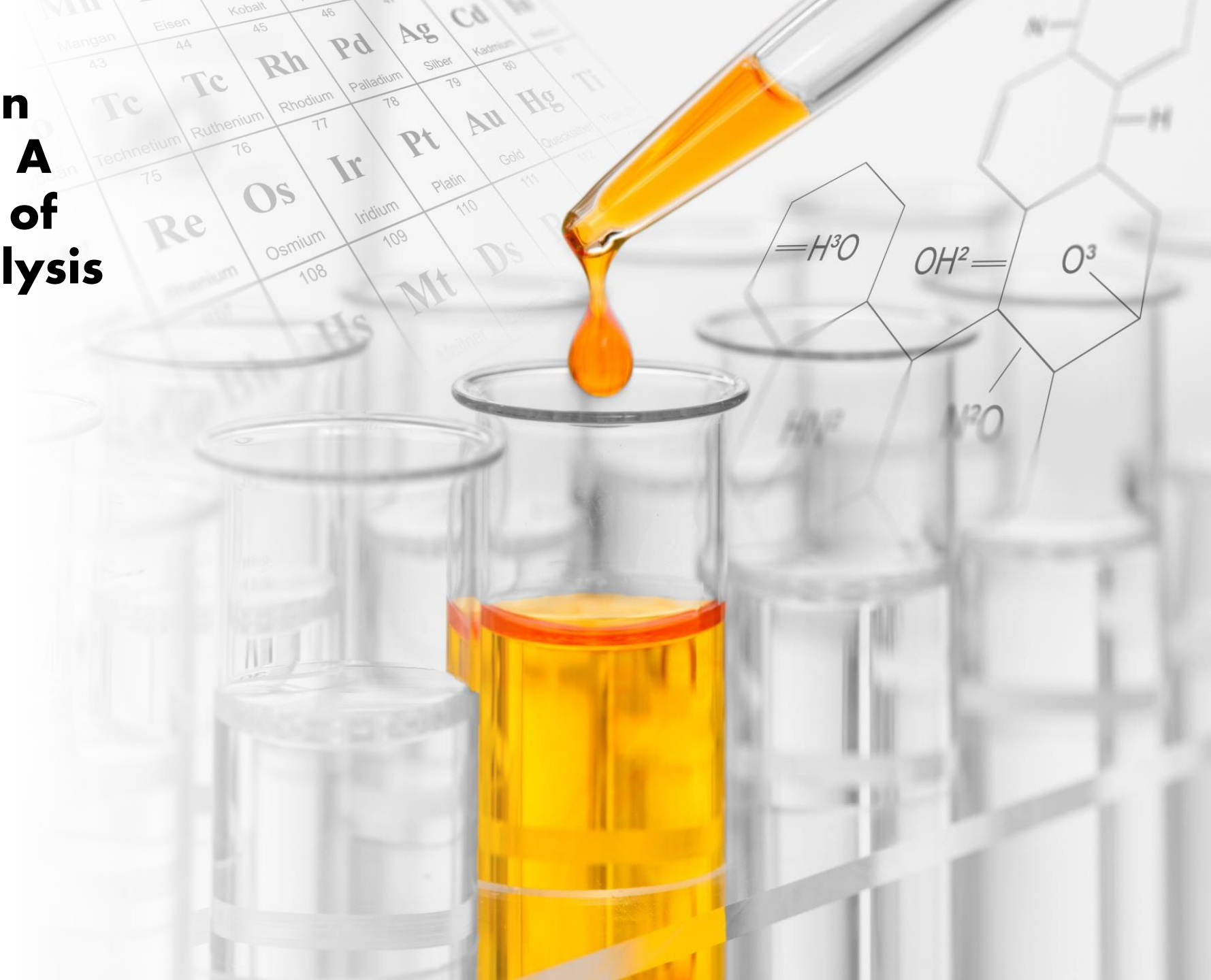
EESHA KISHAN

TURNING INDUSTRIES CLEAN & GREEN

Via Alternate Energy Technologies

A Presentation on POLYMER FUEL – A Fuel Derived out of Waste Tyre Pyrolysis

Contents :



Introduction :

Context and Need of Waste Tyre Recycling

The extraordinary rise in automobile vehicle worldwide generates stockpile of waste tyres which is one of the serious causes of environmental pollution.

According to estimations, the annual global increment of waste tire is of around 17 million tons. By the end of 2030s, the weight of waste tire will be up to 1.2 billion tons annually.

It is tough to recycle waste tyres because of their typical composition.

These tyres will just keep getting accumulated with no further use and pose a threat to the environment and to humans. The best way to tackle the waste tyre disposal problem is by the means of **Pyrolysis Process.**

Pyrolysis is a promising technology to extract energy from the waste tyre via converting into useful products i.e. tyre Pyrolysis oil and Solid Char. TPO, a dark brown/black coloured liquid is used as a fuel, industrial furnaces and power plants etc.

The TPO contains compounds of different hydrocarbon ranging from C5-C20 and this can be used as an alternate source of energy which may help to reduce the consumption of fossil fuels.

Introduction :
Why Pyrolysis ?

Increase in Fuel Demand

Conservation of Natural Resources

Reduction in Carbon Foot Print

Introduction :

Context and Need of Waste Tyre Recycling

Pyrolysis is a thermal decomposition process that converts used tires into valuable products through high-temperature treatment in an oxygen-free environment

The process typically involves three stages:

1. Sourcing & Processing: Used tyres are collected from various dump yards & shredded to smaller pieces to facilitate uniform heating and increase surface area

2. Heating: The shredded tyres are heated in a reactor, usually at temperatures between 400°C to 600°C. The lack of oxygen prevents combustion.

3. Decomposition: As the tyres heat up, they break down into various components, including:

3a: a. Pyrolysis Oil: A liquid product that can be further refined and used as fuel..

3b. b. Carbon black: A solid residue that can be used as a fuel or as a pigment

Introduction :

POLYMER FUEL – A Fuel Derived out of Waste Tyre Pyrolysis

Polymer Fuel is a product derived from the Pyrolysis process, which involves the thermal decomposition of tyres in the absence of oxygen. This process converts Scrap Tyres into valuable resources that includes oil (fuel), Gases and Carbon Black Powder (often used as alternate to Coal/Petcoke).

Polymer Fuel primarily consists of hydrocarbons that includes Aliphatic compounds , Aromatics ,Saturated and unsaturated hydrocarbons

Applications of Polymer Fuel

Alternate Fuel in Kiln Light Ups

Fuel in Hot Air Generators

Fuel in Captive Power Plants (CPP's)

Fuel in Steel / Aluminium Smelting Units

Introduction
Carbon Black Powder

Carbon Black Powder is a product derived from the Pyrolysis Process where organic materials typically Rubber or Plastic, are thermally decomposed in the absence of oxygen.

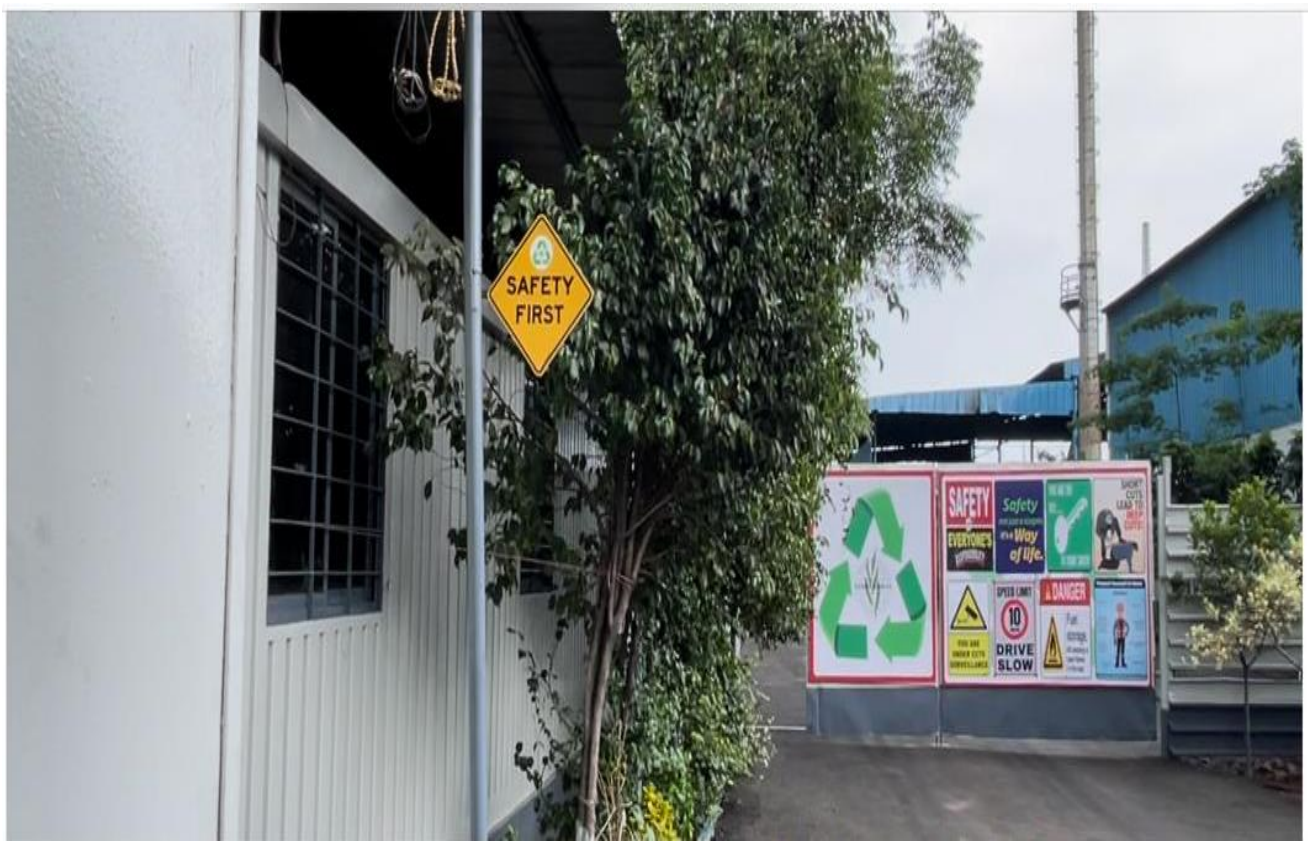
Currently it is extensively being used in Cement Kilns as an alternate fuel due to its CV being 6000 Kcal approximately.

Applications of Carbon Black Powder

- As an Alternate Fuel
- Re-Inforcement Agent
- Pigment in Paints & Plastic Products
- Additive
- Filters
- Other Industrial Applications

About Eesha Kishan

- Established in the year 2015
- The main objective of the company is to recycle and process waste tyres to convert into a fuel, which is used in thermal applications to replace fossil fuels like Furnace Oil, LDO and HSD.
- Capacity : Eesha Kishan has a total capacity of Processing about 100 Tons Per Day of Waste Tyres across 3 Manufacturing Facilities.



Eesha Kishan

Eesha Kishan recycles about 30,000 tons of Scrap Tyres Annually.

We Produce over 800 KL of Polymer Fuel every month & approx 800 tons of Carbon Black Powder.

We have a fleet of 10 Vehicles to facilitate our client requirements.

Currently Supplying Fuel to around 12 Cement Industries & 3 Steel Industries.

Eesha Kishan- Statutory Compliances

- Factory License No. MYBDR-398 [Valid up to: 31-12-2027] .
  UDYAM Registration: UDYAM-KR–06-0007117
- Consent to Operate under Air & water Acts having **consent order no. AW-337346 valid up to 30-06-2028,** 2016 from **Karnataka State Pollution Control Board**
- **Authorization No: 339621 dtd. 14.09.2023** under under Hazardous & Other Wastes [Management & Transboundary Movement]Rules,2016 from **Karnataka State Pollution Control Board**
- PESO Approval No. A/P/SM/KA/15/95 (P557286) DTD. 20.02.23 FOR STORAGE OF Class C Petroleum Products – Issued by Petroleum & Explosive Organization (PESO), Govt. of India
- 100% Compliance to the new **Standard Operating Procedure [SOP]** for Recycling of Waste Tyre Scrap for the recovery of Tyre Pyrolysis Oil, Pyro gas, Carbon Char in Tyre Pyrolysis Units issued by **CPCB** vide Ref # CP–22/139/201-WM-III-HO-CPCB-HO dated: 16-01-2024
  CIN: U23201KA2022PTC157451,
- TAN: BLRE12140C,
  GSTIN: 29AAGCE8808F1ZE

Test Reports- Pyrolysis Oil [Fuel Oil]

BANGALORE ANALYTICAL RESEARCH CENTRE PVT LTD
Sy.No.57, Shree Vijayraja Estate,
ChokkanaHalli,Jakkur Post
Bangalore-560064 Tel: 080 29652966
Email:enquiry@barcindia.com

Certificate of Analysis

Report No.: BARC/GEN/24/10/0957-1/RV0	**LIMS No.:** BARC/24/10/0960	**Date Of Report:** 22/10/2024

Customer Details

Name Of Customer:	Eesha Kishan Eco Energies Private Limited.
Address:	Plot No 181,182 Kolhar Industrial Area Bidar-585402 .
Sample Drawn By Laboratory (Yes/No) :	No **Reference :** Letter

Sample Details

Sample Particulars	: Polymer Fuels	Department/Sub Department	General
Sampling Point / Location	: Not Specified	Sample Qty	Sealed Plastic Bottle - 500ml
Mfg. Date	: Not Specified	Expiry date of sample	Not Specified
Date of sampling	: 18/10/2024	Date of Receipt	18/10/2024
Sample Condition	: Satisfactory	Batch No/Sample Marked	Not specified
		Nature of sample	Liquid
Sampling SOP	: Not Specified	Additional Information	Not Specified

Analysis Result

Date of Analysis	: 19/10/2024	Date of Completion:	22/10/2024

Sr. No.	Parameter	Unit	Result	Method
1	Flash Point	0C	48	In house
2	Ash Content	%	0.03	In house
3	Gross Calorific value	Kcal/Kg	10542	In house
CHEMICAL				
4	Pour point	0C	-14	In house
5	Moisture content	%	0.12	In house
6	Sulphur Content	%	0.21	Gravimetry

Remark : NA

Raghuraman J
Authorized By
Assistant Manager

Note:

1. The results reported relate only to the sample(s) tested.
2. In case the sample is not drawn the results applies to the sample as received.
3. This test report, in full or in part, shall not be reproduced used for any legal action, without prior written approval of laboratory.
4. Laboratory is not responsible for the authenticity of photocopied Test Report.
5. The test items will not be retained for perishable products and will be retained for one month in case of non-perishable samples unless otherwise agreed with the customer or as required by the applicable regulation.
6. Total liability of our laboratory is limited to invoice amount.
7. This is a computer generated document with electronic signature hence does not require manual signature.
8. The statement of Conformity is based on a 95% coverage probability for the Expanded Uncertainty.
9. To confirm the Authenticity of the Certificate of Analysis please contact us through enquiry@barcindia.com or email us the scanned copy of the certificate at lab@barcindia.com

This is System Generated Report.

****End Of Report****

Test Reports- Carbon Black

BANGALORE ANALYTICAL RESEARCH CENTRE PVT LTD
Sy.No.57, Shree Vijayraja Estate,
ChokkanaHalli,Jakkur Post
Bangalore-560064 Tel: 080 29652966
Email:enquiry@barcindia.com

Certificate of Analysis

Report No.: BARC/GEN/24/10/0959-1/RV0	**LIMS No.:** BARC/24/10/0962	**Date Of Report:** 22/10/2024

Customer Details

Name Of Customer:	Eesha Kishan Eco Energies Private Limited.
Address:	Plot No 181,182 Kolhar Industrial Area Bidar-585402 .
Sample Drawn By Laboratory (Yes/No) :	No **Reference :** Letter

Sample Details

Sample Particulars	: Carbon char	Department/Sub Department	: General
Sampling Point / Location	: Not Specified	Sample Qty	: Sealed Polythene Pack (500g)
Mfg. Date	: Not Specified	Expiry date of sample	: Not Specified
Date of sampling	: 18/10/2024	Date of Receipt	: 18/10/2024
Sample Condition	: Satisfactory	Batch No/Sample Marked	: Not specified
		Nature of sample	: Carbon char
Sampling SOP	: Not Specified	Additional Information	: Not Specified

Analysis Result

Date of Analysis	: 19/10/2024	Date of Completion:	: 22/10/2024

Sr. No.	Parameter	Unit	Result	Method
1	Ash Content	%	14.05	IS 1350 (Part-1):1984
2	Fixed Carbon	%	82.35	IS 1350 (Part-1):1984
3	Volatile Matter	%	1.80	IS 1350 (Part-1):1984
4	Calorific Value	kcal/kg	6246	IS 1350 (Part-1):1984
CHEMICAL				
5	Moisture content	%	2.01	In house

Remark : NA

Raghuraman J
Authorized By
Assistant Manager

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******End Of Report******

Comparison

Why No to Fossil Fuels (HSD, LDO) & YES to Polymer Fuel ?

DIESEL / LDO	Polymer Fuel
Lesser Calorific Value 10000 Kcal/Kg	Better Calorific Value 10250 Kcal/Kg
High NOx and CO emissions	Low NOx and CO emissions
High Sulphur > 1.0 %	Low Sulphur < 0.50 %
Expensive	Economical
Does not meet green environment norms	Meets green environment norms
Net CO2 emissions = 10KGs per ton of Diesel fired	Net CO_2 emissions = zero
India IMPORTS CRUDE – Diesel adds to FOREX Deficit	IMPORT Substitute – Saves FOREX
NON GREEN FUEL Made from CRUDE OIL – FOSSIL FUEL SOURCES [non-renewable energy sources]	GREEN Fuel Recycled Fuel from Waste Plastics & Rubbers

Diesel / LDO vs Polymer Fuel(PF)

Test Parameters	Diesel (ASTM)	PF
Gross Calorific Value (K.cal/kg)	1OOOO	10100-10300
Specific gravity at 15 deg C (Range)	0.84-0.88	0.89-0.92
Sulphur as S (% by mass)	1.8	0.5-0.97
Flash Point deg C	66	50-55
Pour Point deg C	-18	-15 to -8
Total Sediment (% by mass)	0.25	< 0.02
Viscosity at 38 Deg C (cSt)	1.5-15.7	1.68-10
Moisture Content (% by mass)	0.25	<0.35
Ash Content (% by mass) Max	< 0.01	< 0.01

Switch to Alternate Fuels & Save Environment

EESHA KISHAN
ECO ENERGIES
PRIVATE LIMITED

Thank You