

# Experimental Investigation on Skin Care Biodiesel Oil Physical Properties for Checking the Suitability as an Alternative Fuel for A VCR Engine

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**Abstract**—Present investigation the skin care oil taken as alternate biodiesel prepared from single phase method. The skin care oil is produced from vegetable basis and fat animals. For the entire evaluation, it is carried out by blending diesel engine with various proportions say B5, B10, B15, and B20 and comparing its performance parameters with conventional diesel. Among those blends optimum blend is selected.

**Keywords:** Biodiesel; Single- phase; Blends.

## 1. INTRODUCTION

At a time when society is becoming increasingly aware of the declining reserves of fossil fuels beside the environmental concerns, it has become apparent that biodiesel is destined to make a substantial contribution to the future energy demands of the domestic and industrial economies. Physical and chemical properties of biodiesel produced from any feedstock must

## 2. PRODUCTION METHOD

Based on the percentage of FFA value, skincare biodiesel was prepared by using single phase method. A measured amount of methanol and sodium hydroxide has to be mixed thoroughly with a measured amount of skin oil. The mixture is heated and maintained at 65°C for 2 hours, then followed by natural cooling process.

## 3. PROPERTIES

By selecting standard apparatus, all the measured properties of skincare biodiesel are categorized into the two major areas the first one as 100 % skincare biodiesel, the later was compositions of skincare biodiesel with various selected fixed blends.

**Table No. 1 Density & Specific Gravity Properties**

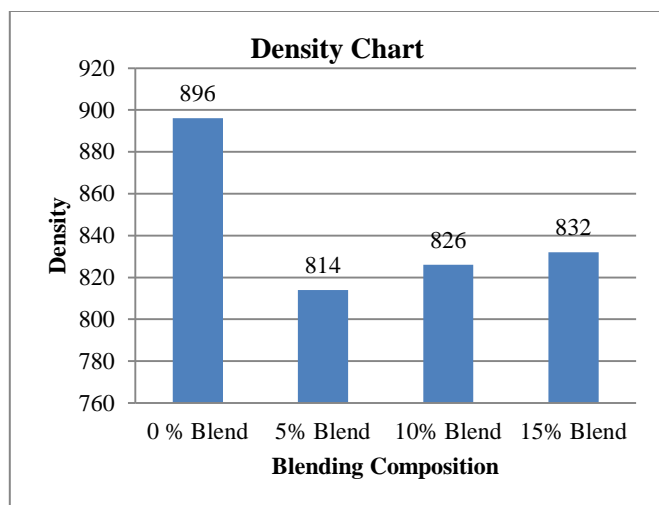
SN	Category	Density (Kg/m <sup>3</sup> )	SN	Category	Specific Gravity
1	Diesel100%	790	1	Diesel100%	0.8
2	Skin Oil (100%)	896	2	Skin Oil (100%)	0.9
3	95% + 5%	814	3	95% + 5%	0.81
4	90%+ 10%	826	4	90%+ 10%	0.82
5	85% + 15%	832	5	85% + 15%	0.83

**Table No. 2 Viscosity & Flash Point Properties**

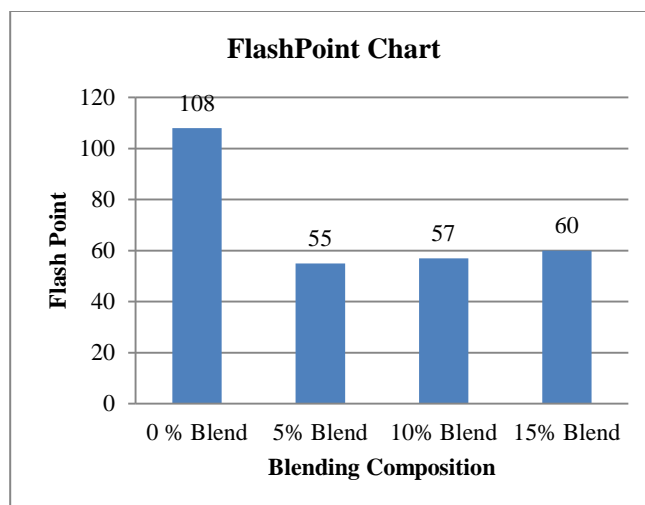
SN	Category	Viscosity (Cst)	SN	Category	Flash Point(°C)
1	Diesel100%	2.2	1	Diesel100%	54
2	Skin Oil (100%)	9.0	2	Skin Oil (100%)	108
3	95% + 5%	2.7	3	95% + 5%	55
4	90%+ 10%	2.9	4	90%+ 10%	57
5	85% + 15%	3.6	5	85% + 15%	60

**Table No. 3 Fire Point & Calorific Value Properties**

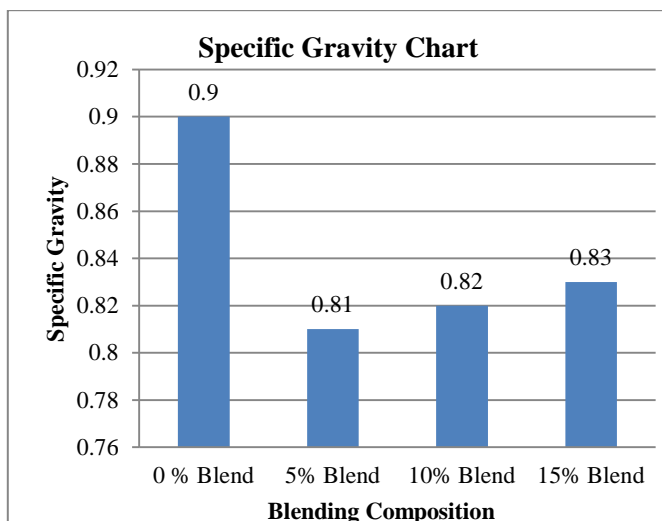
SN	Category	Fire Point (°C)	SN	Category	Calorific Value (KJ/Kg-K)
1	Diesel100%	57	1	Diesel100%	44000
2	Skin Oil (100%)	114	2	Skin Oil (100%)	43471
3	95% + 5%	58	3	95% + 5%	42244
4	90%+ 10%	60	4	90%+ 10%	41903
5	85% + 15%	63	5	85% + 15%	41733



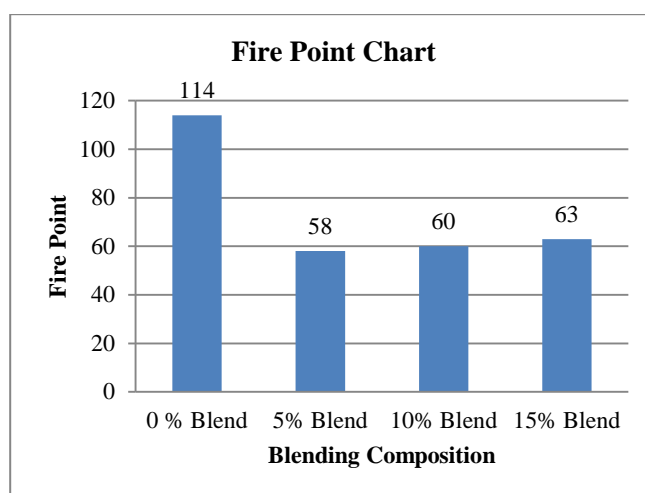
Graph No. 1: Density Chart



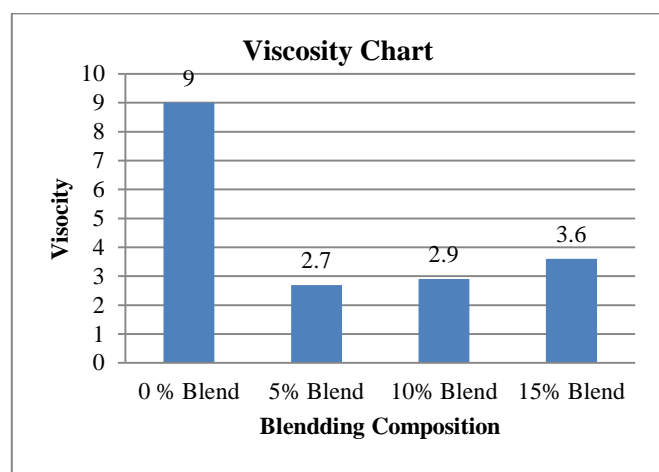
Graph No. 4: Flash Point Chart



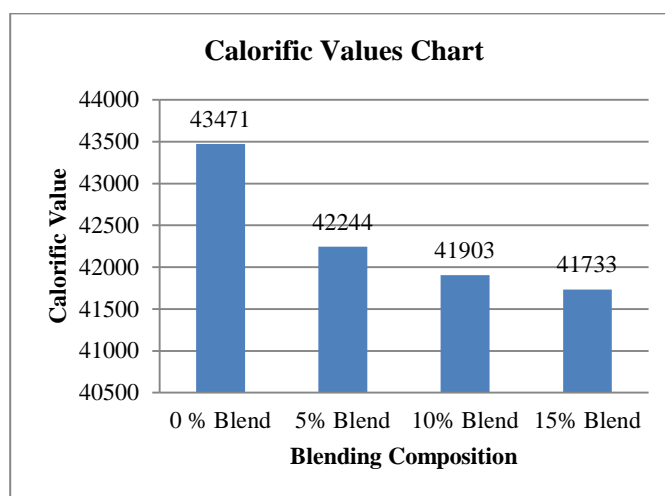
Graph No. 2: Specific Gravity Chart



Graph No. 5: Viscosity Chart



Graph No. 3: Viscosity Chart



Graph No. 6: Flash Point Chart

#### **4. CONCLUSIONS**

On comparison the sink oil is all most nearer to the pure diesel. Where blending compositions changes has the properties are linearly varied. Referring to model graphs density, specific gravity, flash point & fire point values increases with increase in blending composition. Whereas calorific vales inversely proportional to blending composition.

#### **REFERENCES**

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