

Waste Management Plan of

iLive Sustainable Development Holdings Pty (Ltd)

*By Marcelle van den Berg*

January 2016



**Contents**

[Abbreviations 2](#_Toc440264576)

[Table of Figures 2](#_Toc440264577)

[1. Introduction 3](#_Toc440264578)

[2. Personnel and responsibilities 4](#_Toc440264579)

[Facilities Manager/Environmental officer or other 4](#_Toc440264580)

[All staff 4](#_Toc440264581)

[3. Legislation 4](#_Toc440264582)

[4. Definitions 4](#_Toc440264583)

[5. Waste streams, collection and disposal 5](#_Toc440264584)

[Used Cooking Oil 5](#_Toc440264585)

[Wastewater 5](#_Toc440264586)

[Perlite 5](#_Toc440264587)

[Filter Waste 6](#_Toc440264588)

[Packing Material 6](#_Toc440264589)

[Spillage 6](#_Toc440264590)

[6. Monitoring and inspections 7](#_Toc440264591)

[Records 7](#_Toc440264592)

[7. Training 7](#_Toc440264593)

# Abbreviations

UCO - Used Cooking Oil

WMP - Waste Management Plan

# Table of Figures

[Figure 1: Waste Management Hierarchy 3](file:///F:\iLive\Marcelle%20idees\iLive_Waste_Management_Plan_Marcelle_van_den_Berg_rev3.docx#_Toc440264516)

# Introduction

This iLive WMP focuses on all waste produced from the biodiesel production from used cooking oils.

iLive follows a two-step process consisting of esterification and trans-esterification. This process results in waste water, spent perlite and filter waste as the waste produced. Additional waste is the packing materials that the reagents are purchased in.

iLive strives to reduce, reuse and recycle as much as possible.

Figure : Waste Management Hierarchy

The waste hierarchy illustrates the important concepts in waste handling, ranking the different stages in order of priority.

Disposal is the last resort when absolutely nothing can be done with that substance. When disposing of waste, it should be done in such an extent that the environment is save and not harmed.

# Personnel and responsibilities

## Facilities Manager/Environmental officer or other

Day to day monitoring of waste streams. Ensure that the waste receptacles are available and coded. Responsible for any other waste management issues.

## All staff

Minimize the generation of waste, handle dispose and segregate all waste appropriately.

# Legislation

National Environment Management Act (1995) & amendments

Waste Act (2008)

By-Laws of the Ekurhuleni Metropolitan Municipality

# Definitions

**Waste**  - Waste is classified as a substance that is no longer being used and needs to be disposed of.

**Hazardous Waste** - Waste that is potentially harmful to the health of living organisms and poses a threat to the environment.

**Reduce**  - Reducing waste starts before the purchasing of reagents. Thus, the packaging in which reagents are purchased should be safe for the product to be stored in.

**Reuse**  - Reusing substances results in less waste and a safer and cleaner environment.

**Recycle**  - A process where the waste is reclaimed for further use in another production stage.

**Disposal**  - Getting rid of waste that no longer serve a purpose in the process at a licensed landfill.

**UCO** - UCO is any kind of cooking oil that has already been used in the food industry for cooking food.

**Wastewater** - Wastewater is any water that has been affected in purity and quality by anthropogenic influence.

**Perlite** - Perlite is a natural volcanic glass that has distinctive concentric cracks and a high water content.

**Packing Material** - Packing material is all the containers and bags that the reagents are purchased in. In some instances, the reagents are stored in their original packing materials.

# Waste streams, collection and disposal

## Used Cooking Oil

UCO is seen as a waste and should be handled as such up until the point where it enters the production process.

UCO contains food particles that come with the oil from the restaurants where it is purchased. In order to reduce the food particles, the UCO are filtered before storage and prior to entering the production process.

The food particles should be stored in a secure container in a secure storage area until a reasonable amount is gathered.

These food particles can be used for animal feed and/or fertilizer.

In the case of a bad batch of UCO, the UCO should be stored in a secure container in a secure storage area until it can be dispatched to an appropriate landfill.

## Wastewater

Wastewater of a biodiesel production plant consists of water, oil, methanol, soap and glycerol.

If the wastewater does not contain any traces of methanol, it can be used for irrigation purposes.

If traces of methanol are found, the wastewater is hazardous and should be treated as such.

The soap and glycerol, when separated, can be sold and can thus be seen as products.

The hazardous wastewater should be stored in a secure container in a secure storage area until it can be dispatched to an appropriate landfill.

The hazardous wastewater should be disposed of in the correct manner as stipulated in the Ekurhuleni Metropolitan Municipality, Waste Water By-Laws (Ekurhuleni, 2002), Chapter 5, Sections 33 – 38.

## Perlite

Perlite is used as a heterogeneous catalyst in the production of biodiesel.

The spent perlite can contain traces of methanol, acid and glycerol. This is hazardous and should be treated as such.

The spent perlite should be stored in a secure container in a secure storage area until it can be dispatched to an appropriate landfill.

The spent perlite should be disposed of in the correct manner as stipulated in the Ekurhuleni Metropolitan Municipality, Solid Waste By-Laws (Ekurhuleni, 2002), Chapter 6, Sections 18 – 20.

## Filter Waste

Food particles obtained through filtering after the production process can contain traces of methanol, acid, water and glycerol. This is hazardous and should be treated as such.

The food particles should be stored in a secure container in a secure storage area until it can be dispatched to an appropriate landfill.

The food particles should be disposed of in the correct manner as stipulated in the Ekurhuleni Metropolitan Municipality, Solid Waste By-Laws (Ekurhuleni, 2002), Chapter 6, Sections 18 – 20.

## Packing Material

Plastic containers that the reagents and additives are purchased in should be disposed of properly when they are empty.

In order to recycle plastic containers, they must be cleaned and clear of all chemical traces.

The wastewater obtained from cleaning, should it be cleaned on site, should be stored in a secure container in a secure storage area until it can be dispatched to an appropriate landfill.

The wastewater should be disposed of in the correct manner as stipulated in the Ekurhuleni Metropolitan Municipality, Waste Water By-Laws (Ekurhuleni, 2002), Chapter 5, Sections 33 – 38.

The packaging of potassium hydroxide should be handled with care. When all potassium hydroxide particles are removed from the packaging, the packaging itself should be disposed of in the correct manner as stipulated in the Ekurhuleni Metropolitan Municipality, Solid Waste By-Laws (Ekurhuleni, 2002), Chapter 6, Sections 18 – 20.

The potassium hydroxide packaging should be stored in a secure container in a secure storage area until it can be dispatched to an appropriate landfill.

## Spillage

In the case of spillage, the area immediately needs to be secured.

All substances spilled need to be contained and should be stored in a secure container in a secure storage area until it can be dispatched to an appropriate landfill.

The area needs to be cleaned and cleared of all hazardous substances.

The wastewater obtained from cleaning should be stored in a secure container in a secure storage area until it can be dispatched to an appropriate landfill.

# Monitoring and inspections

Carrying out of regular inspections to ensure the waste produced is dealt with in a safe, efficient and legal manner.

## Records

Waste carrier register

Waste disposal register

Land disposal register

# Training

All staff will be trained where necessary, pertinent environmental issues and waste management procedures.