

## MATERIAL SAFETY DATA SHEET



**Description:** SAF ECOPLUS      **Revision Number:** 02

**Document Number:** MSDS E002

### WATER SOLUBLE CUTTING FLUID

#### GENERAL

SAF-ECO PLUS is a water miscible cutting fluid that was developed with three main factors in mind: universality, service life and user acceptability.

These factors govern the efficiency of SAF-ECO PLUS and comparative tests revealed that SAF-ECO PLUS is superior to other traditional products.

The result of very high bio stability and stable pH control are reasons why SAF-ECO PLUS is superior to conventional products, since this results to bacteria levels of 10 to the power 6 microbes per ml of fluid, which even after extended periods remains unchanged with the product being suitable for continued use

#### FORMULATION

SAF-ECO PLUS is based on a blend of refined grade mineral oil, extreme pressure additives and emulsifiers selected for their universality, bio stability and low toxicity.

#### PRODUCT DESCRIPTION

TEST	UNIT	SPECIFICATION
Appearance		Clear dark (blue-green) turquoise liquid
pH (5% soln)		9.00 – 10.50
Density	g/cm <sup>3</sup>	0,960 – 1.010
Emulsifiability		Clear micro emulsion

#### PROPERTIES

- \* Bio stability - SAF-ECO PLUS prevents the premature instability and the formation of unpleasant odours by its use of improved excellent bio stable technology.
- \* Universality - SAF-ECO PLUS is universally applicable and therefore reduces cutting fluid requirements to just one grade.

**Prepared by:** Sabelo Dladla  
**Reviewed by:** Doug Cutter  
**Status:** Issued

**Approved by:** Doug Cutter  
**Revision Date:** 23 March 2017  
**Issue Date:** 23 March 2017

It is the responsibility of the user to verify that this copy is the latest version.

## MATERIAL SAFETY DATA SHEET



**Description:** SAF ECOPLUS      **Revision Number:** 02

**Document Number:** MSDS E002

- \* User acceptability - Carefully selected raw materials with considerations to skin sensitivity and compatibility were used to render SAF-ECO PLUS "operator safe".
- \* Economical - Due to lower operating concentrations, less fluid is used and bio stable technology ensures a long problem free service life.
- \* Corrosion Prevention - SAF-ECO PLUS prevents the development of corrosion due to a unique System of corrosion inhibitors that remain effective even at low Concentrations.
- \* Ecologically safe - SAF-ECO PLUS is free from sodium nitrite, phenols chlorine, and sulphur and does not contain any other toxic material.
- \* Easy separation process - Simple and economical separation process can be used to dispose of SAF-ECO PLUS (see application).

### **APPLICATION**

SAF-ECO PLUS is a universal product and can be used in many different applications with the following guide line:

Automatic machine	-	1:30	(3%)
Grinding steel	-	1:50	(2%)
Grinding cast iron	-	1:40	(2.5%)
Drilling	-	1:30	(3%)
Turning	-	1:30	(3%)
Sawing	-	1:20	(5%)
Milling	-	1:25	(4%)
Broaching	-	1:20	(5%)
Thread cutting	-	1:20	(5%)
Cutting steel	-	1:25	(4%)

### **SEPARATION PROCESS**

By adding an acid like SAF-MET to the used concentration of SAF-ECO PLUS and allowing it to stand, the emulsion will break and separate into two layers. The top layer being the oil can be skimmed off and the bottom layer can be disposed of within the constraints of current water regulations.

### **NOTE:**

THIS PRODUCT IS NOT RECOMMENDED FOR CUTTING TEFLON, ONLY FOR METAL CUTTING PURPOSES.

**Prepared by:** Sabelo Dladla  
**Reviewed by:** Doug Cutter  
**Status:** Issued

**Approved by:** Doug Cutter  
**Revision Date:** 23 March 2017  
**Issue Date:** 23 March 2017

It is the responsibility of the user to verify that this copy is the latest version.

## MATERIAL SAFETY DATA SHEET



**Description:** SAF ECOPLUS      **Revision Number:** 02

**Document Number:** MSDS E002

Before using SAF-ECO PLUS, the old coolant must be removed, and the reservoir cleaned thoroughly to avoid cross-contamination of incompatible products. Make sure that the product is applied at required concentration – please refer above.

**THE RECOMMENDATIONS CONTAINED HERE-IN ARE BASED ON LABORATORY TESTS AND INFIELD USE EXPERIENCE AND ARE TO THE BEST OF OUR KNOWLEDGE ACCURATE. SINCE TERMS AND CONDITIONS OF ACTUAL USE ARE BEYOND OUR CONTROL, ALL RECOMMENDATIONS ARE MADE WITHOUT WARRANTY, EXPRESS OR IMPLIED.**

CONTROLLED DOCUMENT

**Prepared by:** Sabelo Dladla  
**Reviewed by:** Doug Cutter  
**Status:** Issued

**Approved by:** Doug Cutter  
**Revision Date:** 23 March 2017  
**Issue Date:** 23 March 2017

It is the responsibility of the user to verify that this copy is the latest version.

# MATERIAL SAFETY DATA SHEET



Description: SAF ECOPLUS Revision Number: 02

Document Number: MSDS E002

## Company Details

Name	S.A.F.I.C (PTY) LTD	Tel:	+27 11 406 4000
Address	32 Steele Street, Steeledale, JHB	Fax:	+27 11 406 4252
Postal Address	PO BOX 1754, Alberton North, 1450	e-mail:	<a href="mailto:technical@safic.co.za">technical@safic.co.za</a>

## 1. Product Identification

Trade Name	SAF ECO PLUS	Product code: E002
Chemical Family	Refined Mineral base Oils, Emulsifiers, Corrosion inhibitors	
Chemical Name	Formulated chemical	
Product Use	Water extendible metalworking fluid	
UN Number	3082 (Miscellaneous substances)	

## 2. Composition

CAS No.	Hazardous Components	Approximate %	Exposure limits
111-42-2	Diethanolamine esters (2,2'-Iminodiethanol)	40 - 50	(Diethanolamine) TWA: 3ppm
8012-95-1	Mineral Oil	40 - 50	Oil Mist: 5mg/ m <sup>3</sup>

## 3. Hazards Identification

Main hazard	Irritant, concentrate will support combustion.
Inhalation	Concentrate – nausea
Skin contact	May lead to dermatitis after prolonged exposure. Wear gloves when handling.
Eye contact	Concentrate –Irritant with potential corneal injury if treatment is not prompt
Ingestion	Symptom: nausea

## 4. First Aid Measures

Inhalation	Move patient to fresh air. If effect persist, obtain medical attention
Skin contact	Wash area well with soap & water. If emulsion gives rise to irritation or skin rashes, obtain medical advice.
Eye contact	Flush eyes with water for at least 15 minutes. Irrigate eyes thoroughly while lifting eyelids and rolling eyeballs. If irritation persists, seek medical attention.
Ingestion	Rinse mouth with water, and allow patient some water or milk. If large quantities have been swallowed, obtain medical attention. Treat symptomatically.

## 5. Fire Fighting Measures

Fire	The product is non flammable, use suitable extinguishing media in surrounding area. Flash Point > 100 <sup>o</sup> C (Closed cup) Auto ignition > 150 <sup>o</sup> C
Special hazards	None known

Prepared by: Sabelo Dladla  
Reviewed by: Doug Cutter  
Status: Issued

Approved by: Doug Cutter  
Revision Date: 23 March 2017  
Issue Date: 23 March 2017

It is the responsibility of the user to verify that this copy is the latest version.

## MATERIAL SAFETY DATA SHEET



**Description:** SAF ECOPLUS      **Revision Number:** 02

**Document Number:** MSDS E002

Protective clothing	Approved self contained breathing apparatus should be utilised or equivalent.
---------------------	---

### 6. Accidental Release Measures

Personal precaution	Irritant to skin avoid prolonged exposure
Environmental precaution	Do not discharge large quantities to the environment.
Small spills	Remove with absorbent material. Spillage can be slippery
Large spills	Bund using absorbent material, sand or earth. Reclaim liquid directly or soak in an absorbent material.

### 7. Handling & Storage

Storage	Store in a cool dry area. Keep containers sealed. Protect from frost and elevated temperatures
Handling	Avoid contact with skin and eyes – wear protective clothing when handling

### 8. Exposure Controls/Personal Protection

Workers should have access to an eye wash fountain.
If the specific application may result in splashing, safety goggles (VNC11 – supplier – MSA) should be supplied.
If prolonged or frequent contact is expected, NITRILE gloves (Ultranitril 492 – supplier – MSA) should be utilised
Handle in a well ventilated area, or 6300 respiratory/6059 cartridge (3M – supplier) should be utilised if ventilation is not adequate.

### 9. Physical and Chemical Properties

Appearance	Clear dark (blue-green) turquoise liquid
pH (5% soln)	9.00 – 10.50
Density ( g/cm <sup>3</sup> )	0.960 – 1.010
Emulsifiability	Clear micro emulsion

### 10. Stability and Reactivity

Stability	Stable under normal conditions. Avoid extreme temperatures
Incompatible materials	Strong oxidising agents (e.g. chlorates, peroxides); Strong acids.
Hazardous decomposition products	Thermal decomposition can produce a variety of compounds, the nature of which will largely depend on conditions bringing about decomposition. Thermal decomposition may be expected to generate: particulate matter and unburned hydrocarbons, oxides of carbon, oxides of nitrogen, water, partially oxidised organic compounds, and other unidentified organic and inorganic compounds

### 11. Toxicological Information

<b>Prepared by:</b> Sabelo Dladla <b>Reviewed by:</b> Doug Cutter <b>Status:</b> Issued	<b>Approved by:</b> Doug Cutter <b>Revision Date:</b> 23 March 2017 <b>Issue Date:</b> 23 March 2017
---	--

It is the responsibility of the user to verify that this copy is the latest version.

## MATERIAL SAFETY DATA SHEET



**Description:** SAF ECOPLUS      **Revision Number:** 02

**Document Number:** MSDS E002

Toxicity	Chronic Toxicity – No reports of long-term adverse toxic effects in man.
Skin & eye contact	Irritant. Dermal LD50:>2500(rabbits, expected LD50)
Inhalation	Unlikely to present any significant inhalation hazard at ambient temperatures.
Ingestion	ORAL LD50 >2500 (rats, expected LD50). Product has a low order of acute oral toxicity
Carcinogenicity	No carcinogenic effect anticipated. Mineral oils have been highly refined.
NOTE	Contamination of emulsions during use may introduce additional hazards

### 12. Ecological Information

Water	Individual components range from readily to poorly biodegradable. Mineral oil has limited biodegradability (method CEC L-33-T-82) Components are not expected to be highly toxic to aquatic life
Soil	Small quantities will be absorbed in the upper soil layers where biodegradation may take place. Larger quantities may penetrate into anaerobic soil layers in which some of the organic compounds (e.g. mineral oils) may persist

### 13. Disposal Considerations

Undiluted product – may be incinerated in suitable equipment and under controlled conditions. Alternatively, dispose via authorised/licensed waste disposal company.

Diluted emulsions – Emulsions can be treated (chemical splitting) by using SAF-COIL to separate mineral oil and other components from water phase. The water phase may contain dissolved salts, surfactants, trace hydrocarbons and other dissolved materials. It should not be discharged into sewage systems without the approval of appropriate authority and without checking for compliance with issued consent conditions. The non-aqueous phase can be disposed of as for the undiluted product.

### 14. Transport Information

UN Number	3082
Substance identity no	E002
ADR/RID class	Class 9: Irritant liquid
IMDG – packaging group	III
Marine Pollutant	No
IMO/IMDG Classification	IMDG Class 9 Irritant liquid
IATA Classification	Class 9 Irritant liquid

### 15. Regulatory Information

Classification	Irritant (Xi)
Risk phrases	R36/38
Safety phrases	S24/25, S26

**Prepared by:** Sabelo Dladla  
**Reviewed by:** Doug Cutter  
**Status:** Issued

**Approved by:** Doug Cutter  
**Revision Date:** 23 March 2017  
**Issue Date:** 23 March 2017

It is the responsibility of the user to verify that this copy is the latest version.

## MATERIAL SAFETY DATA SHEET



<b>Description:</b> SAF ECOPLUS	<b>Revision Number:</b> 02
<b>Document Number:</b> MSDS E002	

### 16. Other Information

Maintain emulsion at recommended concentration. Minimise tramp oil and other contaminants. Remove swarf and debris from machines at regular intervals – these may abrade the skin and increase the perceptibility to irritation effects. During machining, emulsions may become contaminated with certain metals. These may solubilise in the emulsions. Some of these contaminants are capable of inducing allergic skin reactions. Some may also introduce an increased risk to health.

References: SABS 0265: 1999, SABS 0228: 1995, SABS ISO 11014-1: 1994, M.S.D.S. (Suppliers of raw's)

Issued by: Sabelo Dladla

**EMERGENCY NUMBERS: 0860 4 SAFIC / 082 412 2298**

The information in this MSDS is based on current knowledge and experience at the date of publication. This MSDS summarises our best knowledge of the health and safety hazard information of the product and is intended only as a guide to the appropriate precautionary handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification of the product. The data relates only to the specific product designated, and does not relate to use of the product in combination with any other material or use of the product in any process. The data is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability for fitness for a particular purpose is made with respect to the product, its composition, its safety or the information contained in this MSDS sheet.

### APPENDIX A

Revision Date (dd/mm/yy)	Issued By	Revision History		Revision No.
		Description	DCN No.	
18/02/2011	Technical Manager	New Issue	MSDS E002	00
20/05/2013	Technical Manager	Document review and change of Company logo.	MSDS E002	01
23/03/2017	Operations Director	Document review	MSDS E002	02

<b>Prepared by:</b> Sabelo Dladla	<b>Approved by:</b> Doug Cutter
<b>Reviewed by:</b> Doug Cutter	<b>Revision Date:</b> 23 March 2017
<b>Status:</b> Issued	<b>Issue Date:</b> 23 March 2017

It is the responsibility of the user to verify that this copy is the latest version.



## MATERIAL SAFETY DATA SHEET

**Description:** SAF ECOPLUS

**Revision Number:** 02

**Document Number:** MSDS E002



CONTROLLED DOCUMENT

**Prepared by:** Sabelo Dladla  
**Reviewed by:** Doug Cutter  
**Status:** Issued

**Approved by:** Doug Cutter  
**Revision Date:** 23 March 2017  
**Issue Date:** 23 March 2017

It is the responsibility of the user to verify that this copy is the latest version.