

# MATERIAL SAFETY DATA SHEET

Description: SAF DOX

Revision Number: 01

Document Number: MSDS D003



## CHEMICAL CLEANER AND DESCALER

### GENERAL

In general, where pure descaling is required with no oily or dirt deposits around use SAF-COIL. Where descaling is required together with a cleaning action, use SAF-DOX. Theoretically, if a piece of steel is derusted with SAF-COIL or SAF-DOX and thereafter rinsed off with water, the SAF-DOX application should leave surface shinier. Both however, will flash rust thereafter (can stop that with SAF-DEM). SAF-MET is recommended for mild steel derusting.

### FORMULATION

SAF-DOX is a blend of powerful cleaning acids, sequestering agents and inhibitors in a stable aqueous base.

### PRODUCT DESCRIPTION

TEST	UNIT	SPECIFICATIONS
Appearance		Clear liquid
Colour		Purple - brown
Odour / perfume		Acidic, almonds
Density	g/cm <sup>3</sup>	1,10 - 1,15
Acidity	1N KOH/cm <sup>3</sup>	5,5 - 7,0

### PROPERTIES

- \* Highly inhibitory.
- \* Will not attack copper, brass or steel.
- \* Removes rust and corrosion.
- \* Effectively cleans dirt and scale from masonry.

Prepared by: Sabelo Dladla

Reviewed by: Doreen Gwanyuki

Status: Issued

Approved by: Doug Cutter

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### DIRECTIONS FOR DESCALING OF BOILERS USING SAF-DOX

1. Disconnect the inlet feed pipe to the boiler and either blow down nozzle or other suitable nozzle and connect in a plastic pump using plastic hosing in order to circulate contents of the boiler.
2. Fill boiler completely with a 1:10 dilution of SAF-DOX and start circulating pump.
3. Circulate SAF-DOX solution until required descaling has been achieved. This can take between 1 and 12 hours.

**NOTE:** Descaling procedure can be speeded up if the solution is warm i.e. 50 C.

4. Drain SAF-DOX solution and discharge to effluent and refill boiler with 0, 25% solution of sodium bicarbonate.
5. Circulate this neutralising solution for 15 to 20 minutes and then drain, checking that the solution is neutral.
6. If this solution is not neutral then the carbonate wash must be repeated and finally the boiler should be well washed out and preferably rinsed with the same filling, circulating and emptying procedure several times with tap water.
7. Before restarting the boiler, ensure that the feed water is thoroughly soft and has been properly de-oxygenated and alkalised with recommended boiler water treatment chemicals.

**THE RECOMMENDATIONS CONTAINED HERE-IN IS 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.**

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## Company Details

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## 1. Product Identification

Trade Name	SAF-DOX	Product code:	D003
Chemical Family	Hydrochloric acid, surfactants, inhibitors.		
Chemical Name	Formulated chemical		
Product Use	Use when descaling is required with a cleaning action.		
UN No:	1789		

## 2. Composition

CAS No.	Hazardous Components	Approximate %	OSHA PEL
7647-01-0	Hydrochloric acid (30%)	40 - 50	CL 5 ppm
EEC classification	Corrosive (C), SAF - DOX		
R Phrases	R34/36/37/38, R35 SAF - DOX		

## 3. Hazards Identification

Main hazard	Corrosive
Fire	Non-flammable
Inhalation	Irritation of mucous membranes
Skin contact	Tingling, burning, redness
Eye contact	Burning, possible serious damage to eyes.
Ingestion	Burning of throat, stomach, possibly nausea & vomiting.

## 4. First Aid Measures

Inhalation	Move patient to fresh air and allow them some water
Skin contact	Immediately rinse area well with water. In the case of blisters, seek <b>medical attention</b> .
Eye contact	Flush eyes with water for at least 15 minutes. Irrigate eyes thoroughly while lifting eyelids and rolling eyeballs. Even if there is no pain, <b>seek medical attention</b> .
Ingestion	Rinse mouth with water, and allow patient as much water as possible. Do not induce vomiting, as this may cause further injury. <b>Seek medical attention</b> .

## 5. Fire Fighting Measures

Extinguishing media	Product non-flammable. Use extinguishing agents suitable for surrounding fire.
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Special hazard	Product will generate heat in contact with water.
Protective clothing	Approved self contained breathing apparatus should be utilised or equivalent equipment.

### 6. Accidental Release Measures

Personal precautions	Neutralise the product before disposal. The product will etch unsealed concrete. On uncoated metal surfaces, flush off with water to prevent rusting.
Environmental precautions	As per good environmental management practices, prevent contamination of watercourses or ground with large quantities of undiluted product
Small spills	Neutralise with SAF – EA NUETRALISER and flush residue with plenty of water.
Large spills	Dyke ahead of liquid spill. Prevent the discharge of large amounts of concentrated product into sewerage, and watercourses. Neutralise with SAF – EA NUETRALISER and dispose small quantities to effluent with plenty water.

### 7. Handling & Storage

Handling	Handle product with care – wear protective clothing and equipment.
Storage	Store in a cool dry area. Keep containers sealed.

### 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 utilised.
Neoprene gloves (Technic 420-supplier MSA) should be utilised.
Work in a well-ventilated area or 6300 type mask/6059 cartridge (3M – supplier) should be utilised where ventilation isn't adequate.

### 9. Physical and Chemical Properties

Appearance	Clear purple/brown liquid
Density	1.10 – 1.15 g/cm <sup>3</sup>
Acidity	5.5 – 7.0 cm <sup>3</sup> KOH/cm <sup>3</sup>
Solubility (water)	100 %

### 10. Stability and Reactivity

Stability	Stable under normal conditions.
Incompatible materials	Product will generate heat in contact with water. Hydrochloric acid reacts explosively with potassium permanganate & violently with ammonium hydroxide, sodium hydroxide & sulphuric acid. Potentially dangerous reaction with sulphuric acid releases corrosive hydrogen chloride gas.

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Hazardous decomposition products	Hydrochloric acid emits toxic flumes of Cl <sup>-</sup> when heated to decomposition and possibly corrosive hydrogen chloride gas.
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## 11. Toxicological Information (based on HCL)

Toxicity	lhl (rat) LD50: 3124 ppm, Oral (rbt) 900 mg/kg
Skin & eye contact	Corrosive to skin and eye contact.
Chronic toxicity	Prolonged exposure may cause erosion and discoloration of exposed teeth, chronic bronchitis and gastritis.
Carcinogenicity	No evidence of carcinogenic properties
Mutagenicity	Mutation data reported.
Teratogenicity	Teratogen effects reported.

## 12. Ecological Information (based on HCL)

Aquatic toxicity – rainbow trout	Acidification may be fatal to aquatic organisms.
Aquatic toxicity – daphnia	Acidification may be fatal to aquatic organisms.
Aquatic toxicity – algae	Acidification may be fatal to plants and other living organisms.
Biodegradability	Not expected to biodegrade (based on HCL), when neutralised salt and water is formed, which is harmless to aquatic environment.
Bio accumulation	There's a no possibility of bio accumulation but can lower the pH which can be fatal to aquatic organisms.

## 13. Disposal Considerations

Disposal method	Neutralise the product before disposing of it using SAF – EA NUETRALISER for small quantities.
First neutralise the product with SAF – EA NUETRALISER before containing, flush area with water. Dispose as per agreed local government method for large quantities.	
Disposal of packaging	Recycle or provide to drum collectors or recovers.

## 14. Transport Information

UN No:	1789
Substance identity no	D003
ADR/RID class	Class 8: Corrosive liquid
IMDG – packaging group	II/III
Marine Pollutant	No, but toxic to aquatic organisms.
IMO/IMDG Classification	Class 8: Corrosive liquid
IATA Classification	Class 8: Corrosive liquid

## 15. Regulatory Information

EEC-hazard classification	Corrosive {C}
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Risk phrases	R34/36/37/38, R35
Safety phrases	S1/2, S35/37/39

## 16. Other Information

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

**EMERGENCY NUMBERS: 011 406 4000 / 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.

### APPENDIX A

Revision Date (dd/mm/yy)	Issued By	Revision History		Revision No.
		Description	DCN No.	
18/02/2011	Technical Manager	New Issue	MSDS D003	00
30/03/2015	Operations Director	Reviewed	MSDS D003	01

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