

Safety Data Sheet

acc. to OSHA HCS

Printing date 03/13/2015

Reviewed on 03/13/2015

1 Identification

Product identifier

Trade name: *DINITROL 538 PLUS*

Relevant identified uses of the substance or mixture and uses advised against

No further relevant information available.

Application of the substance / the mixture Primer

Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Hersteller/ Producer: EFTEC AG, Hofstrasse 31, CH-8590 Romanshorn

EU-Importeur/ EU-Importer: EFTEC Ltd., Rhigos/Aberdare, GB-Mid Glamorgan CF44 9UE (Responsible for chemical registration in EU)

Lieferant/ Supplier: DINOL GmbH, Pyrmonterstrasse 76, D-32676 Lügde

Information department: msds@dinol.com

Emergency telephone number: Giftnotruf D-Berlin +49(0)30 30686 790 Beratung in Deutsch und Englisch.

2 Hazard(s) identification

Classification of the substance or mixture

Classification according to Directive 67/548/EEC or Directive 1999/45/EC



Xi; Irritant

R36-42/43: Irritating to eyes. May cause sensitization by inhalation and skin contact.



F; Highly flammable

R11: Highly flammable.

R67: Vapours may cause drowsiness and dizziness.

Information concerning particular hazards for human and environment:

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Has a narcotizing effect.

Classification system:

The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.

Label elements

Labelling according to EU guidelines:

The product has been classified and marked in accordance with directives on hazardous materials.

Code letter and hazard designation of product:



Xn Harmful

F Highly flammable

Hazard-determining components of labeling:

HMDI-Oligomere

(Contd. on page 2)

Safety Data Sheet

acc. to OSHA HCS

Printing date 03/13/2015

Reviewed on 03/13/2015

Trade name: **DINITROL 538 PLUS**

(Contd. of page 1)

diphenylmethanediisocyanate, isomeres and homologues

Risk phrases:

- 11 Highly flammable.
 36 Irritating to eyes.
 42/43 May cause sensitization by inhalation and skin contact.
 67 Vapours may cause drowsiness and dizziness

Safety phrases:

- 9 Keep container in a well-ventilated place.
 23 Do not breathe spray.
 24 Avoid contact with skin.
 37 Wear suitable gloves.
 45 In case of accident or if you feel unwell, seek medical advice immediately.
 60 This material and its container must be disposed of as hazardous waste.

Special labeling of certain preparations:

Contains isocyanates. See information supplied by the manufacturer.

Hazard description:**Canadian Hazard Symbols**

- B2 - Flammable liquid
 D2A - Very toxic material causing other toxic effects

**Classification system:**

NFPA ratings (scale 0 - 4)



Health = 1
 Fire = 3
 Reactivity = 0

HMIS-ratings (scale 0 - 4)



Health = 1
 Fire = 3
 Reactivity = 0

Other hazards

The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.

Results of PBT and vPvB assessment

PBT: Not applicable.
vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Mixtures

Description: Mixture of the substances listed below with nonhazardous additions.

Dangerous components:

(Contd. on page 3)

CA

Safety Data Sheet

acc. to OSHA HCS

Printing date 03/13/2015

Reviewed on 03/13/2015

Trade name: **DINITROL 538 PLUS**

(Contd. of page 2)

CAS: 78-93-3 EINECS: 201-159-0	butanone ☒ Xi R36; ☒ F R11 R66-67 ☒ Flam. Liq. 2, H225 ☒ Eye Irrit. 2, H319; STOT SE 3, H336	50-100%
CAS: 108-65-6 EINECS: 203-603-9	2-methoxy-1-methylethyl acetate R10 ☒ Flam. Liq. 3, H226	5-10%
CAS: 1333-86-4 EINECS: 215-609-9	Carbon black ☒ Carc. 2, H351	5-10%
CAS: 28182-81-2 NLP: 500-060-2	HMDI-Oligomere ☒ Xn R20; ☒ Xi R37-43 ☒ Acute Tox. 4, H332; Skin Sens. 1, H317; STOT SE 3, H335	5-10%
CAS: 123-86-4 EINECS: 204-658-1	n-butyl acetate R10-66-67 ☒ Flam. Liq. 3, H226 ☒ STOT SE 3, H336	1-5%
CAS: 1330-20-7 EINECS: 215-535-7	xylene, mixture of isomers ☒ Xn R20/21; ☒ Xi R38 R10 ☒ Flam. Liq. 3, H226 ☒ Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315	1-5%
CAS: 9016-87-9 EC number: 618-498-9	diphenylmethanediisocyanate, isomeres and homologues ☒ Xn R20-40-48/20; ☒ Xi R36/37/38-42/43 Carc. Cat. 3 ☒ Resp. Sens. 1, H334; Carc. 2, H351; STOT RE 2, H373 ☒ Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335	0.1-1%
CAS: 100-41-4 EINECS: 202-849-4	ethylbenzene ☒ Xn R20; ☒ F R11 ☒ Flam. Liq. 2, H225 ☒ Carc. 2, H351 ☒ Acute Tox. 4, H332	0.1-1%

Additional information:

For the wording of the listed risk phrases refer to section 16.

The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.

4 First-aid measures**Description of first aid measures****After inhalation:**

Supply fresh air and to be sure call for a doctor.

In case of unconsciousness place patient stably in side position for transportation.

After skin contact: Immediately wash with water and soap and rinse thoroughly.**After eye contact:**

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

After swallowing: Seek immediate medical advice.**Information for doctor:****Most important symptoms and effects, both acute and delayed** No further relevant information available.

(Contd. on page 4)

Safety Data Sheet

acc. to OSHA HCS

Printing date 03/13/2015

Reviewed on 03/13/2015

Trade name: DINITROL 538 PLUS

(Contd. of page 3)

Indication of any immediate medical attention and special treatment needed

No further relevant information available.

* 5 Fire-fighting measures

Extinguishing media

Suitable extinguishing agents: CO₂, sand, extinguishing powder. Do not use water.

For safety reasons unsuitable extinguishing agents:

Water

Water with full jet

Special hazards arising from the substance or mixture No further relevant information available.

Advice for firefighters

Protective equipment: No special measures required.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

Environmental precautions:

Prevent seepage into sewage system, workpits and cellars.

Do not allow to enter sewers/ surface or ground water.

Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Do not flush with water or aqueous cleansing agents

Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage

Handling:

Precautions for safe handling

No special measures required.

Ensure good ventilation/exhaustion at the workplace.

Prevent formation of aerosols.

Information about protection against explosions and fires:

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

Conditions for safe storage, including any incompatibilities

Storage:

Requirements to be met by storerooms and receptacles: Store in a cool location.

Information about storage in one common storage facility: Not required.

Further information about storage conditions:

Keep receptacle tightly sealed.

Store in cool, dry conditions in well sealed receptacles.

Maximum storage temperature: < 35 °C

Minimum storage temperature: > 0 °C

(Contd. on page 5)

CA

Safety Data Sheet

acc. to OSHA HCS

Printing date 03/13/2015

Reviewed on 03/13/2015

Trade name: **DINITROL 538 PLUS**

Specific end use(s) No further relevant information available.

(Contd. of page 4)

8 Exposure controls/personal protection

Additional information about design of technical systems: No further data; see item 7.

Control parameters

Components with limit values that require monitoring at the workplace:

78-93-3 butanone

EL (Canada)	Short-term value: 100 ppm Long-term value: 50 ppm
EV (Canada)	Short-term value: 885 mg/m ³ , 300 ppm Long-term value: 590 mg/m ³ , 200 ppm
PEL (USA)	Long-term value: 590 mg/m ³ , 200 ppm
REL (USA)	Short-term value: 885 mg/m ³ , 300 ppm Long-term value: 590 mg/m ³ , 200 ppm
TLV (USA)	Short-term value: 885 mg/m ³ , 300 ppm Long-term value: 590 mg/m ³ , 200 ppm BEI

108-65-6 2-methoxy-1-methylethyl acetate

EL (Canada)	Short-term value: 75 ppm Long-term value: 50 ppm
EV (Canada)	Long-term value: 270 mg/m ³ , 50 ppm
WEEL (USA)	Long-term value: 50 ppm

1333-86-4 Carbon black

EL (Canada)	Long-term value: 3 mg/m ³ IARC 2B
EV (Canada)	Long-term value: 3.5 mg/m ³
PEL (USA)	Long-term value: 3.5 mg/m ³
REL (USA)	Long-term value: 3.5* mg/m ³ *0.1 in presence of PAHs; See Pocket Guide Apps.A+C
TLV (USA)	Long-term value: 3* mg/m ³ *inhalable fraction

123-86-4 n-butyl acetate

EL (Canada)	Long-term value: 20 ppm
EV (Canada)	Short-term value: 950 mg/m ³ , 200 ppm Long-term value: 710 mg/m ³ , 150 ppm
PEL (USA)	Long-term value: 710 mg/m ³ , 150 ppm
REL (USA)	Short-term value: 950 mg/m ³ , 200 ppm Long-term value: 710 mg/m ³ , 150 ppm
TLV (USA)	Short-term value: 950 mg/m ³ , 200 ppm Long-term value: 713 mg/m ³ , 150 ppm

1330-20-7 xylene, mixture of isomers

EL (Canada)	Short-term value: 150 ppm Long-term value: 100 ppm
EV (Canada)	Short-term value: 650 mg/m ³ , 150 ppm Long-term value: 435 mg/m ³ , 100 ppm

(Contd. on page 6)

CA

Safety Data Sheet

acc. to OSHA HCS

Printing date 03/13/2015

Reviewed on 03/13/2015

Trade name: DINITROL 538 PLUS

(Contd. of page 5)

PEL (USA)	Long-term value: 435 mg/m ³ , 100 ppm
REL (USA)	Short-term value: 655 mg/m ³ , 150 ppm Long-term value: 435 mg/m ³ , 100 ppm
TLV (USA)	Short-term value: 651 mg/m ³ , 150 ppm Long-term value: 434 mg/m ³ , 100 ppm BEI

Ingredients with biological limit values:

78-93-3 butanone

BEI (USA)	2 mg/L Medium: urine Time: end of shift Parameter: MEK
-----------	-----------------------------------------------------------------

1330-20-7 xylene, mixture of isomers

BEI (USA)	1.5 g/g creatinine Medium: urine Time: end of shift Parameter: Methylhippuric acids
-----------	----------------------------------------------------------------------------------------------

Additional information: The lists that were valid during the creation were used as basis.

Exposure controls

Personal protective equipment:

General protective and hygienic measures:

- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Do not inhale gases / fumes / aerosols.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin.

Breathing equipment:



Use suitable respiratory protective device in case of insufficient ventilation.

Filter A

Protection of hands:



Protective gloves

- Chemical resistant protective gloves with CE-labeling
- To minimize the wetness in the glove due to perspiration changing of gloves during a shift is required.
- Softening of the callus when wearing air-impermeable gloves is possible.
- Check the permeability prior to each renewed use of the glove.

Material of gloves

Butyl rubber, BR

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

(Contd. on page 7)

Safety Data Sheet

acc. to OSHA HCS

Printing date 03/13/2015

Reviewed on 03/13/2015

Trade name: **DINITROL 538 PLUS**

(Contd. of page 6)

Eye protection:

Safety glasses

Body protection:

Protective work clothing

9 Physical and chemical properties

Information on basic physical and chemical properties**General Information****Appearance:**

Form:	Liquid
Color:	Black
Odor:	Characteristic
Odour threshold:	Not determined.

pH-value: Not determined.

Change in condition

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	79 °C

Flash point: -4 °C

Flammability (solid, gaseous): Not applicable.

Ignition temperature: > 300 °C

Decomposition temperature: Not determined.

Auto igniting: Product is not selfigniting.

Danger of explosion: Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

Explosion limits:

Lower:	1.8 Vol %
Upper:	11.5 Vol %

Vapor pressure at 20 °C: 105 hPa

Density at 20 °C:	0.93 g/cm ³
Relative density	Not determined.
Vapour density	Not determined.
Evaporation rate	Not determined.

Solubility in / Miscibility with

Water: Not miscible or difficult to mix.

Partition coefficient (n-octanol/water): Not determined.

Viscosity:

Dynamic: Not determined.

(Contd. on page 8)

CA

Safety Data Sheet

acc. to OSHA HCS

Printing date 03/13/2015

Reviewed on 03/13/2015

Trade name: **DINITROL 538 PLUS**

(Contd. of page 7)

Kinematic:	Not determined.
Solvent content:	
Organic solvents:	72.3 %
Solids content:	27.2 %
Other information	No further relevant information available.

10 Stability and reactivity

Reactivity

Chemical stability

Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

Possibility of hazardous reactions No dangerous reactions known.

Conditions to avoid No further relevant information available.

Incompatible materials: No further relevant information available.

Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

Information on toxicological effects

Acute toxicity:

LD/LC50 values that are relevant for classification:

ATE (Acute Toxicity Estimates)

Oral	LD50	5535 mg/kg (rat)
Dermal	LD50	7943 mg/kg (rabbit)
Inhalative	LC50/ 4h	89.4 mg/l

9016-87-9 diphenylmethanediisocyanate, isomeres and homologues

Oral	LD50	> 10000 mg/kg (rat) (OECD-Prüfrichtlinie 401)
Dermal	LD50	> 9400 mg/kg (rabbit) (OECD-Prüfrichtlinie 402)
Inhalative	LC50/ 4h	310 mg/l (rat) (OECD-Prüfrichtlinie 403)

Primary irritant effect:

on the skin: No irritant effect.

on the eye: Irritating effect.

Sensitization:

Sensitization possible through inhalation.

Sensitization possible through skin contact.

Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:

Harmful

Irritant

Carcinogenic categories

IARC (International Agency for Research on Cancer)

1333-86-4	Carbon black	2B
1330-20-7	xylene, mixture of isomers	3
9016-87-9	diphenylmethanediisocyanate, isomeres and homologues	3
100-41-4	ethylbenzene	2B

(Contd. on page 9)

CA

Safety Data Sheet

acc. to OSHA HCS

Printing date 03/13/2015

Reviewed on 03/13/2015

Trade name: **DINITROL 538 PLUS**

(Contd. of page 8)

NTP (National Toxicology Program)

None of the ingredients is listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

Toxicity**Aquatic toxicity:****9016-87-9 diphenylmethanediisocyanate, isomeres and homologues**

EC50/ 24h (static) > 1000 mg/l (daphnia) (OECD-Prüfrichtlinie 202)

EC50/ 72h > 1640 mg/l (alga) (OECD-Prüfrichtlinie 201)

LC50/ 96h (static) > 1000 mg/l (fish) (OECD-Prüfrichtlinie 203)

Persistence and degradability No further relevant information available.**Behavior in environmental systems:****Bioaccumulative potential** No further relevant information available.**Mobility in soil** No further relevant information available.**Additional ecological information:****General notes:**

Water hazard class 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

Results of PBT and vPvB assessment**PBT:** Not applicable.**vPvB:** Not applicable.**Other adverse effects** No further relevant information available.

13 Disposal considerations

Waste treatment methods**Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Uncleaned packagings:**Recommendation:** Disposal must be made according to official regulations.

14 Transport information

UN-Number**DOT, TDG, IMDG, IATA**

UN1993

UN proper shipping name**DOT**

Flammable liquids, n.o.s. (Ethyl methyl ketone (Methyl ethyl ketone))

TDG

UN1993 Flammable liquids, n.o.s. (Ethyl methyl ketone (Methyl ethyl ketone))

IMDG, IATA

FLAMMABLE LIQUID, N.O.S. (ETHYL METHYL KETONE (METHYL ETHYL KETONE))

(Contd. on page 10)

CA

Safety Data Sheet

acc. to OSHA HCS

Printing date 03/13/2015

Reviewed on 03/13/2015

Trade name: **DINITROL 538 PLUS**

(Contd. of page 9)

Transport hazard class(es)**DOT**

Class 3 Flammable liquids

Label 3

TDG (Transport dangerous goods):

Class 3 (F1) Flammable liquids

Label 3

IMDG, IATA

Class 3 Flammable liquids

Label 3

Packing group

DOT, TDG, IMDG, IATA II

Environmental hazards:

Marine pollutant: No

Special precautions for user Warning: Flammable liquids

Danger code (Kemler): 33

EMS Number: F-E,S-E

Transport in bulk according to Annex II of

MARPOL73/78 and the IBC Code Not applicable.

Transport/Additional information:**DOT**

Quantity limitations On passenger aircraft/rail: 5 L
On cargo aircraft only: 60 L

TDG

Excepted quantities (EQ) Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

IMDG

Limited quantities (LQ) 1L
Excepted quantities (EQ) Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

CA

(Contd. on page 11)

Safety Data Sheet

acc. to OSHA HCS

Printing date 03/13/2015

Reviewed on 03/13/2015

Trade name: **DINITROL 538 PLUS**

(Contd. of page 10)

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture
Sara

Section 355 (extremely hazardous substances):

None of the ingredient is listed.

Section 313 (Specific toxic chemical listings):

78-93-3	butanone
1330-20-7	xylene, mixture of isomers
9016-87-9	diphenylmethanediisocyanate, isomeres and homologues
100-41-4	ethylbenzene

TSCA (Toxic Substances Control Act):

All ingredients are listed.

Proposition 65
Chemicals known to cause cancer:

1333-86-4	Carbon black
100-41-4	ethylbenzene

Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

Carcinogeny categories
EPA (Environmental Protection Agency)

78-93-3	butanone	I
1330-20-7	xylene, mixture of isomers	I
9016-87-9	diphenylmethanediisocyanate, isomeres and homologues	CBD
100-41-4	ethylbenzene	D

TLV (Threshold Limit Value established by ACGIH)

Carbon black	A4
xylene, mixture of isomers	A4
ethylbenzene	A3
dibutyltin dilaurate	A4

NIOSH-Ca (National Institute for Occupational Safety and Health)

1333-86-4	Carbon black
-----------	--------------

Canadian substance listings:
Canadian Domestic Substances List (DSL)

All ingredients are listed.

Canadian Ingredient Disclosure list (limit 0.1%)

100-41-4	ethylbenzene
----------	--------------

Canadian Ingredient Disclosure list (limit 1%)

78-93-3	butanone
---------	----------

(Contd. on page 12)

Safety Data Sheet

acc. to OSHA HCS

Printing date 03/13/2015

Reviewed on 03/13/2015

Trade name: DINITROL 538 PLUS

(Contd. of page 11)

1333-86-4	Carbon black
123-86-4	n-butyl acetate
1330-20-7	xylene, mixture of isomers

National regulations:**Technical instructions (air):**

Class	Share in %
I	0.1-1
NK	50-100

USA-VOC: 670.4 g/l / 5.59 lb/gl**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Relevant phrases

- H225 *Highly flammable liquid and vapor.*
 H226 *Flammable liquid and vapour.*
 H312 *Harmful in contact with skin.*
 H315 *Causes skin irritation.*
 H317 *May cause an allergic skin reaction.*
 H319 *Causes serious eye irritation.*
 H332 *Harmful if inhaled.*
 H334 *May cause allergy or asthma symptoms or breathing difficulties if inhaled.*
 H335 *May cause respiratory irritation.*
 H336 *May cause drowsiness or dizziness.*
 H351 *Suspected of causing cancer.*
 H373 *May cause damage to organs through prolonged or repeated exposure.*
- R10 *Flammable.*
 R11 *Highly flammable.*
 R20 *Harmful by inhalation.*
 R20/21 *Harmful by inhalation and in contact with skin.*
 R36 *Irritating to eyes.*
 R36/37/38 *Irritating to eyes, respiratory system and skin.*
 R37 *Irritating to respiratory system.*
 R38 *Irritating to skin.*
 R40 *Limited evidence of a carcinogenic effect.*
 R42/43 *May cause sensitization by inhalation and skin contact.*
 R43 *May cause sensitization by skin contact.*
 R48/20 *Harmful: danger of serious damage to health by prolonged exposure through inhalation.*
 R66 *Repeated exposure may cause skin dryness or cracking*
 R67 *Vapours may cause drowsiness and dizziness*

Department issuing MSDS: Entwicklung**Contact:** msds@dinol.com**Date of preparation / last revision** 03/13/2015 / -*** Data compared to the previous version altered.**