



SAFETY DATA SHEET
according to GB/T 16483 and GB/T 17519

Version 1.0

ImmersoI™ 518 F

Material: 000000-0360-890

Revision date: 2024/05/29

Date of last issue: -

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : ImmersoI™ 518 F
Product name in English : ImmersoI™ 518 F
Chemical nature : Halogen-free immersion oil based on ester oil.

Manufacturer or supplier's details

Company : Carl Zeiss Jena GmbH
Address : Oberkochen location
Carl-Zeiss-Straße 22
D-73447 Oberkochen
Telephone : Chemical and material engineering
+49 7364 20-4599
Telefax : +49 7364 20-4521
E-mail address : Chemical and material engineering
SDS@zeiss.com
Emergency telephone number : +86-0532-83889090

Recommended use of the chemical and restrictions on use

Recommended use : Industrial use
Professional use
Immersion oil for fluorescence-microscopy, halogen-free, low
fluorescence

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	: liquid
Colour	: colourless
Odour	: slight, aromatic

May be harmful if swallowed or in contact with skin. Causes skin irritation. Toxic to aquatic life.

GHS Classification

Acute toxicity (Oral) : Category 5
Acute toxicity (Dermal) : Category 5
Skin corrosion/irritation : Category 2



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Short-term (acute) aquatic hazard : Category 2

GHS label elements

Hazard pictograms : 

Signal word : Warning

Hazard statements : H303 + H313 May be harmful if swallowed or in contact with skin.
H315 Causes skin irritation.
H401 Toxic to aquatic life.

Precautionary statements : **Prevention:**
P264 Wash skin thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear protective gloves.
Response:
P302 + P352 IF ON SKIN: Wash with plenty of water.
P312 Call a POISON CENTER/ doctor if you feel unwell.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Physical and chemical hazards

Not classified based on available information.

Health hazards

May be harmful if swallowed. May be harmful in contact with skin. Causes skin irritation.

Environmental hazards

Toxic to aquatic life.

Other hazards which do not result in classification

None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
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Adipic acid-di(8-methyl-tricyclo (5.2.1.0.2.6.) decane) ester	195371-10-9	>= 30 -< 50
Succinic acid-di(8-methyl-tricyclo (5.2.1.0.2.6.) decane) ester	195371-13-2	>= 30 -< 50
benzyl benzoate	120-51-4	>= 10 -< 20

4. FIRST AID MEASURES

- General advice : Remove and wash contaminated clothing before re-use.
- If inhaled : In the case of inhalation of aerosol/mist consult a physician if necessary.
- In case of skin contact : Wash off with soap and plenty of water.
In the case of skin irritation or allergic reactions see a physician.
- In case of eye contact : Immediately flush eye(s) with plenty of water.
If eye irritation persists, consult a specialist.
- If swallowed : Rinse mouth.
Do not give anything to drink or eat.
Do NOT induce vomiting.
Get medical attention.
- Most important symptoms and effects, both acute and delayed : May be harmful if swallowed or in contact with skin.
Causes skin irritation.
- Notes to physician : No information available.

5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Carbon dioxide (CO₂)
Dry chemical
Foam
Sand
Water spray jet
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during fire-fighting : In case of fire formation of carbonoxides and other toxic gases/vapors is possible.
- Specific extinguishing methods : Use water spray to cool unopened containers.
Prevent fire extinguishing water from contaminating surface water or the ground water system.
- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Avoid contact with skin, eyes and clothing.
Ensure adequate ventilation.
Risk of slipping because of leaked / spilled product



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- | | | |
|---|---|---|
| Environmental precautions | : | Do not flush into surface water or sanitary sewer system.
Avoid subsoil penetration. |
| Methods and materials for containment and cleaning up | : | Soak up with inert absorbent material.
Clean contaminated surface thoroughly. |
-

7. HANDLING AND STORAGE

Handling

- | | | |
|---|---|---|
| Advice on protection against fire and explosion | : | Keep away from open flames, hot surfaces and sources of ignition. |
| Advice on safe handling | : | Avoid contact with skin and eyes. |
| Avoidance of contact | : | Oxidizing agents |

Storage

- | | | |
|-----------------------------|---|--|
| Conditions for safe storage | : | Store at room temperature in the original container.
Keep tightly closed. |
| Materials to avoid | : | Keep away from food and drink.
Do not mix with other immersion liquids. |
-

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Personal protective equipment

- | | | |
|--------------------------|---|--|
| Respiratory protection | : | Not required; except in case of aerosol formation. |
| Eye/face protection | : | Avoid contact with eyes. |
| Skin and body protection | : | Impervious clothing |
| Hand protection | : | |

Remarks	:	Avoid contact with skin. Wear suitable gloves. Request information on glove permeation properties from the glove supplier.
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- | | | |
|---------------------|---|--|
| Protective measures | : | Avoid contact with skin, eyes and clothing. |
| Hygiene measures | : | Take off all contaminated clothing immediately.
When using, do not eat, drink or smoke. |
-

9. PHYSICAL AND CHEMICAL PROPERTIES

- | | | |
|------------|---|------------------|
| Appearance | : | liquid |
| Colour | : | colourless |
| Odour | : | slight, aromatic |
| pH | : | Not applicable |
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Boiling point/boiling range	:	ca. 320 °C
Flash point	:	249 °C
		Method: ISO 2592
Vapour pressure	:	< 0.1 hPa (20 °C)
Density	:	1.093 g/cm ³ (20 °C)
		Method: DIN 51757
Solubility(ies)		
Water solubility	:	insoluble
Viscosity		
Viscosity, kinematic	:	445 mm ² /s (20 °C)
		Method: DIN 51562

10. STABILITY AND REACTIVITY

Reactivity	:	No data available
Chemical stability	:	No decomposition if stored and applied as directed.
Possibility of hazardous reactions	:	None known.
Conditions to avoid	:	Keep away from heat. Keep away from direct sunlight.
Incompatible materials	:	Oxidizing agents
Hazardous decomposition products	:	In case of fire formation of carbonoxides and other toxic gases/vapors is possible.
Hazardous decomposition products	:	None known.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

May be harmful if swallowed or in contact with skin.

Product:

Acute oral toxicity	:	Acute toxicity estimate: 3,811 mg/kg Method: Calculation method
Acute dermal toxicity	:	Acute toxicity estimate: 4,993 mg/kg Method: Calculation method

Components:

Adipic acid-di(8-methyl-tricyclo (5.2.1.0.2.6.) decane) ester:

Acute oral toxicity	:	LD50 (Rat): > 2,000 mg/kg
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Method: Directive 96/54/EG, B.1

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg
Method: OECD Test Guideline 402

benzyl benzoate:

Acute oral toxicity : LD50 (Rabbit): 1,680 mg/kg

Acute dermal toxicity : LD50 (Rabbit): 4,000 mg/kg

Skin corrosion/irritation

Causes skin irritation.

Components:

Adipic acid-di(8-methyl-tricyclo (5.2.1.0.2.6.) decane) ester:

Species : Rabbit
Exposure time : 4 h
Method : Directive 92/69/EWG, B.4
Result : Skin irritation

Succinic acid-di(8-methyl-tricyclo (5.2.1.0.2.6.) decane) ester:

Result : Skin irritation

benzyl benzoate:

Species : Rabbit
Exposure time : 4 h
Method : OECD Test Guideline 404
Result : No skin irritation

Serious eye damage/eye irritation

Not classified based on available information.

Components:

Adipic acid-di(8-methyl-tricyclo (5.2.1.0.2.6.) decane) ester:

Species : Rabbit
Result : No eye irritation
Method : Directive 92/69/EWG, B.5

benzyl benzoate:

Species : Rabbit
Result : No eye irritation
Method : OECD Test Guideline 405



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Respiratory or skin sensitisation

Skin sensitisation

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Components:

Adipic acid-di(8-methyl-tricyclo (5.2.1.0.2.6.) decane) ester:

Species : Guinea pig
Method : Richtlinie 96/54/EG, B.6
Result : Does not cause skin sensitisation.

benzyl benzoate:

Test Type : Local lymph node assay (LLNA)
Species : Mouse
Method : OECD Test Guideline 429
Result : negative

Germ cell mutagenicity

Not classified based on available information.

Components:

Adipic acid-di(8-methyl-tricyclo (5.2.1.0.2.6.) decane) ester:

Germ cell mutagenicity - Assessment : Cytogenetic test (chromosome aberration), chinese hamster:
No reference to mutagenic effects. (OECD TG 473)

Ames-Test, salmonella typhimurium: No reference to mutagenic effects. (EEC B 14)

Carcinogenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

STOT - single exposure

Not classified based on available information.

STOT - repeated exposure

Not classified based on available information.

Components:

Adipic acid-di(8-methyl-tricyclo (5.2.1.0.2.6.) decane) ester:

Repeated dose toxicity - Assessment : NOAEL oral, rat: 500 mg/kg (Testing period: 28 d, Subsequent observation period: 48 d, OECD TG 407)



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Aspiration toxicity

Not classified based on available information.

Further information

Product:

Remarks : Health injuries are not known or expected under normal use.
Handle in accordance with good industrial hygiene and safety practice.

Components:

Adipic acid-di(8-methyl-tricyclo (5.2.1.0.2.6.) decane) ester:

Remarks : Handle in accordance with good industrial hygiene and safety practice.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Adipic acid-di(8-methyl-tricyclo (5.2.1.0.2.6.) decane) ester:

Toxicity to fish : LC50 (Cyprinus carpio): > 5.4 mg/l
Exposure time: 96 h
Method: Directive 92/69/EWG C.1
Remarks: No toxicity at the limit of solubility

LC0 (Cyprinus carpio): >= 5.40 mg/l
Exposure time: 96 h
Method: Directive 92/69/EWG C.1
Remarks: No toxicity at the limit of solubility

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia (water flea)): > 6.1 mg/l
Exposure time: 48 h
Method: Directive 92/69/EWG C.2
Remarks: No toxicity at the limit of solubility

EC0 (Daphnia (water flea)): >= 6.10 mg/l
Exposure time: 48 h
Method: Directive 92/69/EWG C.2
Remarks: No toxicity at the limit of solubility

NOEC (Daphnia (water flea)): 1.6 mg/l
Exposure time: 504 h
Analytical monitoring: yes
Remarks: chronic toxicity to daphnia
No toxicity at the limit of solubility



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Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): > 3.6 mg/l
Exposure time: 72 h
Method: Directive 92/69/EWG C.3
Remarks: No toxicity at the limit of solubility

NOEC (Desmodesmus subspicatus (green algae)): >= 3.6 mg/l
Exposure time: 72 h
Method: Directive 92/69/EWG C.3
Remarks: No toxicity at the limit of solubility

Toxicity to microorganisms : EC10 (activated sludge): > 1,000 mg/l
Exposure time: 3 h
Method: EG L133/118 (5.88)
Remarks: to respiration inhibition test applies EC50
No toxicity at the limit of solubility

Ecotoxicology Assessment

Acute aquatic toxicity : This product has no known ecotoxicological effects.

Chronic aquatic toxicity : This product has no known ecotoxicological effects.

benzyl benzoate:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 2.32 mg/l
Exposure time: 96 h
Test Type: semi-static test
Method: Directive 67/548/EEC, Annex V, C.1.

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 3.09 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202

NOEC (Daphnia magna (Water flea)): 0.26 mg/l
Exposure time: 21 DAY
Test Type: semi-static test
Method: OECD Test Guideline 211

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): 0.475 mg/l
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity) : 1

Toxicity to microorganisms : EC50 (activated sludge): > 10,000 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209



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Persistence and degradability

Components:

Adipic acid-di(8-methyl-tricyclo (5.2.1.0.2.6.) decane) ester:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 13 %
Exposure time: 28 days
Method: Modified Sturm Test

benzyl benzoate:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 94 %
Exposure time: 28 days

Bioaccumulative potential

Components:

Adipic acid-di(8-methyl-tricyclo (5.2.1.0.2.6.) decane) ester:

Partition coefficient: n- : log Pow: 8.9 (25 °C)
octanol/water Method: Directive 92/69/EWG A.8

benzyl benzoate:

Partition coefficient: n- : log Pow: ca. 3.97 (25 °C)
octanol/water

Mobility in soil

Components:

Adipic acid-di(8-methyl-tricyclo (5.2.1.0.2.6.) decane) ester:

Mobility : Remarks: KOC: 50.000 (water, soil)
(Method: OECD TG 121)

Other adverse effects

Product:

Additional ecological infor- : Should not be released into the environment.
mation Adequate disposal

Components:

Adipic acid-di(8-methyl-tricyclo (5.2.1.0.2.6.) decane) ester:

Additional ecological infor- : Do not discharge into sewerage system, surface water or soil.
mation Adequate disposal



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benzyl benzoate:

Additional ecological information : Do not discharge into sewerage system, surface water or soil.

13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : In accordance with local and national regulations.
Contaminated packaging : Dispose of as unused product.
Offer rinsed packaging material to local recycling facilities.

14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

UN/ID No. : Not applicable
Proper shipping name : Not applicable
Class : Not applicable
Subsidiary risk : Not applicable
Packing group : Not applicable
Labels : Not applicable
Packing instruction (cargo aircraft) : Not applicable
Packing instruction (passenger aircraft) : Not applicable

IMDG-Code

UN number : Not applicable
Proper shipping name : Not applicable
Class : Not applicable
Subsidiary risk : Not applicable
Packing group : Not applicable
Labels : Not applicable
EmS Code : Not applicable
Marine pollutant : Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations

GB 6944/12268

UN number : Not applicable
Proper shipping name : Not applicable
Class : Not applicable
Subsidiary risk : Not applicable
Packing group : Not applicable
Labels : Not applicable



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Special precautions for user

Not applicable

15. REGULATORY INFORMATION

National regulatory information

Measures on the Environmental Administration of New Chemical Substances Registration

Registration/Notification number : 01-0000017636-64

Downstream users need to comply with the conditions of safe use of the chemical, understand the environmental and health hazard and risk management measures identified on the SDS as well as the local/national regulations concerning the chemical.

16. OTHER INFORMATION

Revision Date : 2024/05/29

Further information

Other information : Relevant changes to the previous version are symbolized by vertical bars at the left edge.
complete revision

Sources of key data used to compile the Safety Data Sheet : Reg. 1272/2008, Annex VI
TRGS 900
TRGS 903
International dangerous goods regulations
Supplier details

Date format : yyyy/mm/dd

Full text of other abbreviations

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median



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Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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