

Safety Data Sheet

acc. to OSHA HCS

Printing date 07/12/2017

Reviewed on 07/12/2017

1 Identification

- **Product identifier**
- **Trade name: FotoDent Model 385/405 nm**
- **Application of the substance / the mixture**
Material based on methacrylate resin for DLP-systems with LED 385 nm and 405 nm for generative manufacturing of dental models
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Dreve Dentamid GmbH
Max-Planck-Straße 31
59423 Unna / Germany
Tel.: + 49 2303 / 8807-0
Fax.: +49 2303 / 8807-55
- **Information department:**
Department Research & Development
Fax.: +49 2303 8807-562
Email: sicherheitsdatenblatt@dreve.de
- **Emergency telephone number:**
+49 211 797-3350
Plant Fire Department Henkel

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS08 Health hazard

Repr. 2 H361 Suspected of damaging fertility or the unborn child.



GHS07

Skin Sens. 1 H317 May cause an allergic skin reaction.

- **Label elements**

- **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



GHS07 GHS08

- **Signal word** Warning

- **Hazard-determining components of labeling:**

1,4 Butanediol dimethacrylate

Diphenyl(2,4,6-trimethylbenzoyl)phosphinoxide

Diurethandimethacrylate

hydroxypropylmethacrylate, monoester with propane-1,2-diol

- **Hazard statements**

May cause an allergic skin reaction.

Suspected of damaging fertility or the unborn child.

(Contd. on page 2)



Safety Data Sheet acc. to OSHA HCS

Printing date 07/12/2017

Reviewed on 07/12/2017

Trade name: FotoDent Model 385/405 nm

(Contd. of page 1)

- **Precautionary statements**

Avoid breathing dust/fume/gas/mist/vapors/spray

Wear protective gloves / eye protection / face protection.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Wash contaminated clothing before reuse.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Classification system:**

- **NFPA ratings (scale 0 - 4)**



Health = 0

Fire = 1

Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



Health = *0

Fire = 1

Reactivity = 0

- **Other hazards**

Uncontrollable exothermic product polymerisation possible in case of storage above 60 °C or exposure to direct sunlight.

- **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:**

2082-81-7	1,4 Butanediol dimethacrylate	2.5-10%
72869-86-4	Diurethandimethacrylate	2.5-10%
	Acrylic resin	2.5-10%
27813-02-1	hydroxypropylmethacrylate, monoester with propane-1,2-diol	2.5-10%
75980-60-8	Diphenyl(2,4,6-trimethylbenzoyl)phosphinoxide	2.5-10%

- **Additional information:** For the wording of the listed hazard phrases refer to section 16.

4 First-aid measures

- **Description of first aid measures**

- **General information:** Immediately remove any clothing soiled by the product.

- **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.

If skin irritation continues, consult a doctor.

- **After eye contact:**

Rinse opened eye for several minutes under running water. Then consult a doctor.

(Contd. on page 3)



Safety Data Sheet acc. to OSHA HCS

Printing date 07/12/2017

Reviewed on 07/12/2017

Trade name: FotoDent Model 385/405 nm

(Contd. of page 2)

- **After swallowing:**
Do not induce vomiting.
Call a doctor immediately.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed**
No further relevant information available.
- **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, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** 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**
Avoid contact with skin and eyes.
- **Environmental precautions:**
Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
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.
- **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.
- **Protective Action Criteria for Chemicals**

- **PAC-1:**

72869-86-4	Diurethandimethacrylate	120 mg/m ³
818-61-1	2-hydroxyethyl acrylate	0.1 ppm

- **PAC-2:**

72869-86-4	Diurethandimethacrylate	1,300 mg/m ³
818-61-1	2-hydroxyethyl acrylate	1.1 ppm

- **PAC-3:**

72869-86-4	Diurethandimethacrylate	7,900 mg/m ³
818-61-1	2-hydroxyethyl acrylate	21 ppm

-US-

(Contd. on page 4)



Safety Data Sheet acc. to OSHA HCS

Printing date 07/12/2017

Reviewed on 07/12/2017

Trade name: FotoDent Model 385/405 nm

(Contd. of page 3)

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Protect from heat and direct sunlight.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** None.
- **Specific end use(s)** No further relevant information available.

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:**
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.
At this time, the other constituents have no known exposure limits.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
- **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Protection of hands:**



Protective gloves

Protective gloves should be changed regularly, especially after intensive contact with the product. For every workplace a suitable type of protective gloves must be selected. The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

- **Material of gloves**

Nitrile rubber, NBR

As there are many different conditions in every day work these indications can only serve as an aid to orientation for the selection of suitable gloves for the handling of chemical products. By no means they can replace qualifying examinations by the end-user.

Diese Empfehlung gilt nur für das im Sicherheitsdatenblatt genannte Produkt. Bei Vermischung mit anderen Substanzen und bei von der EN 374 abweichenden Bedingungen müssen Sie sich an den Hersteller von CE-genehmigten Handschuhen wenden.

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.

(Contd. on page 5)



Safety Data Sheet acc. to OSHA HCS

Printing date 07/12/2017

Reviewed on 07/12/2017

Trade name: FotoDent Model 385/405 nm

(Contd. of page 4)

- **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.

The determined penetration times according to EN 374 part III are not performed under practical conditions. Therefore a maximum wearing time, which corresponds to 50% of the penetration time, is recommended.

- **Eye protection:** Goggles recommended during refilling.
- **Body protection:** Protective work clothing

9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

Form:	Fluid
Color:	Different according to coloring

- | | |
|--------------------------|-----------------|
| · Odor: | Characteristic |
| · Odor threshold: | Not determined. |

- | | |
|--------------------|-----------------|
| · pH-value: | Not determined. |
|--------------------|-----------------|

- **Change in condition**

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	200 °C (392 °F)

- | | |
|-----------------------|-----------------|
| · Flash point: | 112 °C (234 °F) |
|-----------------------|-----------------|

- | | |
|---|-----------------|
| · Flammability (solid, gaseous): | Not applicable. |
|---|-----------------|

- | | |
|--------------------------------|-----------------|
| · Ignition temperature: | 235 °C (455 °F) |
|--------------------------------|-----------------|

- | | |
|-------------------------------------|-----------------|
| · Decomposition temperature: | Not determined. |
|-------------------------------------|-----------------|

- | | |
|-------------------------|------------------------------|
| · Auto igniting: | Product is not selfigniting. |
|-------------------------|------------------------------|

- | | |
|-------------------------------|---|
| · Danger of explosion: | Product does not present an explosion hazard. |
|-------------------------------|---|

- **Explosion limits:**

Lower:	Not determined.
Upper:	Not determined.

- | | |
|-------------------------------|----------------|
| · Oxidizing properties | Not determined |
|-------------------------------|----------------|

- | | |
|--------------------------|-----------------|
| · Vapor pressure: | Not determined. |
|--------------------------|-----------------|

- | | |
|------------------------------------|--------------------------------------|
| · Density at 20 °C (68 °F): | 1.1 g/cm ³ (9.18 lbs/gal) |
|------------------------------------|--------------------------------------|

- | | |
|---------------------------|-----------------|
| · Relative density | Not determined. |
|---------------------------|-----------------|

- | | |
|------------------------|-----------------|
| · Vapor 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.
Kinematic:	Not determined.

- **Solvent content:**

Organic solvents:	0.0 %
-------------------	-------

(Contd. on page 6)



Safety Data Sheet acc. to OSHA HCS

Printing date 07/12/2017

Reviewed on 07/12/2017

Trade name: FotoDent Model 385/405 nm

(Contd. of page 5)

- **Other information** No further relevant information available.

10 Stability and reactivity

- **Reactivity** No dangerous reactions if used according to specifications
- **Chemical stability** Stable if used according to specifications
- **Thermal decomposition / conditions to be avoided:**
Protect from heat and direct sunlight.
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:**

75980-60-8 Diphenyl(2,4,6-trimethylbenzoyl)phosphinoxide

Oral	LD50	>5000 mg/kg (rat)
------	------	-------------------

Dermal	LD50	> 2000 mg/kg (rat) ((OECD 402))
--------	------	---------------------------------

- **Sensitization:** Sensitization possible through skin contact.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

- **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:** No further relevant information available.
- **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.
- **Ecotoxicological effects:**
- **Remark:** Harmful to fish

(Contd. on page 7)

US



Safety Data Sheet acc. to OSHA HCS

Printing date 07/12/2017

Reviewed on 07/12/2017

Trade name: FotoDent Model 385/405 nm

(Contd. of page 6)

- **Additional ecological information:**
- **General notes:**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Harmful to aquatic organisms
- **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.
Disposal must be made according to official regulations.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- | | |
|--|-----------------|
| · UN-Number | Void |
| · DOT, ADR, ADN, IMDG, IATA | Void |
| · UN proper shipping name | Void |
| · DOT, ADR, ADN, IMDG, IATA | Void |
| · Transport hazard class(es) | Void |
| · DOT, ADR, ADN, IMDG, IATA | Void |
| · Class | Void |
| · Packing group | Void |
| · DOT, ADR, IMDG, IATA | Void |
| · Environmental hazards: | |
| · Marine pollutant: | No |
| · Special precautions for user | Not applicable. |
| · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable. |
| · UN "Model Regulation": | Void |

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.

(Contd. on page 8)



Safety Data Sheet acc. to OSHA HCS

Printing date 07/12/2017

Reviewed on 07/12/2017

Trade name: FotoDent Model 385/405 nm

(Contd. of page 7)

· Section 313 (Specific toxic chemical listings):

None of the ingredients is listed.

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

· Proposition 65
· Chemicals known to cause cancer:

None of the ingredients is listed.

· 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.

· Cancerogenity categories
· EPA (Environmental Protection Agency)

None of the ingredients is listed.

· TLV (Threshold Limit Value established by ACGIH)

None of the ingredients is listed.

· MAK (German Maximum Workplace Concentration)

None of the ingredients is listed.

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

None of the ingredients is listed.

· GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms


GHS07 GHS08

· Signal word Warning

· Hazard-determining components of labeling:

1,4 Butanediol dimethacrylate

Diphenyl(2,4,6-trimethylbenzoyl)phosphinoxide

Diurethandimethacrylate

hydroxypropylmethacrylate, monoester with propane-1,2-diol

· Hazard statements

May cause an allergic skin reaction.

Suspected of damaging fertility or the unborn child.

· Precautionary statements

Avoid breathing dust/fume/gas/mist/vapors/spray

Wear protective gloves / eye protection / face protection.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Wash contaminated clothing before reuse.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 9)



Safety Data Sheet acc. to OSHA HCS

Printing date 07/12/2017

Reviewed on 07/12/2017

Trade name: FotoDent Model 385/405 nm

(Contd. of page 8)

- **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.

- **Department issuing SDS:** Department Research & Development
- **Contact:** Dr. Thomas Veit, Lothar Sutor
- **Date of preparation / last revision** 07/12/2017 / 2

- **Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Skin Sens. 1: Skin sensitisation – Category 1

Repr. 2: Reproductive toxicity – Category 2

- *** Data compared to the previous version altered.**

US