Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

DENTSPLY DEGUVEST HFG / F / CF

SYNONYMS

Deguvest Impuls
Biosint xtra / Cergo fit
Optivest / Optivest ananti

PRODUCT USE

For dental use only.

SUPPLIER

Company: Dentsply (Australia) Pty Ltd (ABN: 15 004 290 322)
Address:
11-21 Gilby Road
Mount Waverley
VIC, 3149

Telephone: +61 03 9538 8240
Emergency Tel: 0413 830 239
Fax: 03 9538 8260

Section 2 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE

HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

According to the Criteria of NOHSC, and the ADG Code.

POISONS SCHEDULE

None

RISK

Harmful: danger of serious damage to health by prolonged exposure through inhalation.
Inhalation may produce health damage*.
Cumulative effects may result following exposure*.
May produce discomfort of the eyes*.
Possible cancer-causing agent following repeated inhalation*.
* (limited evidence)

SAFETY

Keep container in a well ventilated place.

continued...

Section 2 - HAZARDS IDENTIFICATION ...

Avoid exposure - obtain special instructions before use.
Take off immediately all contaminated clothing.
In case of contact with eyes, rinse with plenty of water and contact Doctor or Poisons Information Centre.
If you feel unwell contact Doctor or Poisons Information Centre. (Show the label if possible).

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
silica crystalline - quartz	14808-60-7	50-70
cristobalite	14464-46-1	10-30
magnesium oxide	1309-48-4.	5-15
ammonium phosphate, monobasic	7722-76-1	5-15

Section 4 - FIRST AID MEASURES

SWALLOWED

- Immediately give a glass of water.
- First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

EYE

If this product comes in contact with the eyes:

- Wash out immediately with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- If pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

If skin or hair contact occurs:

- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor.

continued...

Section 4 - FIRST AID MEASURES ...

NOTES TO PHYSICIAN

Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- There is no restriction on the type of extinguisher which may be used.

Use extinguishing media suitable for surrounding area

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves for fire only.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use fire fighting procedures suitable for surrounding area.
- DO NOT approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

- Solid which exhibits difficult combustion or is difficult to ignite.
- Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust may burn rapidly and fiercely if ignited
- Dry dust can also be charged electrostatically by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport.
- Build-up of electrostatic charge may be prevented by bonding and grounding.
- Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.

Decomposition may produce toxic fumes of
carbon dioxide (CO_2)
nitrogen oxides (NOx)
ammonia
sulfur oxides (SOx)
other pyrolysis products typical of burning organic material
May emit poisonous fumes.
May emit corrosive fumes.

FIRE INCOMPATIBILITY

Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

HAZCHEM

None

continued...

Section 5 - FIRE FIGHTING MEASURES ...

Personal Protective Equipment

PERSONAL PROTECTION EQUIPMENT
Breathing apparatus.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

- Clean up all spills immediately.
- Avoid breathing dust and contact with skin and eyes.
- Wear protective clothing, gloves, safety glasses and dust respirator.
- Use dry clean up procedures and avoid generating dust.
- Sweep up, shovel up or
- Vacuum up (consider explosion-proof machines designed to be grounded during storage and use).
- Place spilled material in clean, dry, sealable, labelled container.

MAJOR SPILLS

- Clean up all spills immediately.
- Avoid breathing dust and contact with skin and eyes.
- Wear protective clothing, gloves, safety glasses and dust respirator.
- Use dry clean up procedures and avoid generating dust.
- Sweep up, shovel up or
- Vacuum up (consider explosion-proof machines designed to be grounded during storage and use).
- Place spilled material in clean, dry, sealable, labelled container.

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- DO NOT allow material to contact humans, exposed food or food utensils.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately. Launder contaminated clothing

continued...

Section 7 - HANDLING AND STORAGE ...

before re-use.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE CONTAINER
- Polyethylene or polypropylene container.
- Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY
Avoid reaction with oxidising agents

STORAGE REQUIREMENTS
Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

EXPOSURE STANDARDS FOR MIXTURE
"Worst Case" computer-aided prediction of spray/ mist or fume/ dust components and concentration:

Composite Exposure Standard for Mixture (TWA) :0.0555 mg/m³.
Operations which produce a spray/mist or fume/dust, introduce particulates to the breathing zone.
If the breathing zone concentration of ANY of the components listed below is exceeded, "Worst Case" considerations deem the individual to be overexposed.
Component Breathing Zone ppm Breathing Zone mg/m³ Mixture Conc (%)

Component	Breathing Zone (mg/m³)	Mixture Conc (%)
silica crystalline - quartz	0.0389	70.0
cristobalite	0.0111	20.0
magnesium oxide	0.0028	5.0
ammonium phosphate, monobasic	0.0028	5.0

INGREDIENT DATA

SILICA CRYSTALLINE - QUARTZ:
TLV TWA: 0.05 mg/m³ (R) Quartz A2 [ACGIH]
PEL: (Quartz (Respirable)) [OSHA Z3]250 / (%SiO(2)+5) mppcf
Footnote (b): The percentage of crystalline silica in the formula is the amount determined from airborne samples, except in those instances in which other

continued...

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION ...

methods have been shown to be applicable.
PEL: (Quartz (Respirable)) [OSHA Z3]10 / (%SiO(2)+2) mg/m³
Footnote (e): Both concentration and percent quartz for the application of this limit are to be determined from the fraction passing a size-selector with the following characteristics.

Aerodynamic diameter (unit density sphere)	Percent passing selector
2.0	90
2.5	75
3.5	50
5.0	25
10	0

The measurements under this note refer to the uses of an AEC (now NRC) instrument. The respirable fraction of coal dust is determined with an MRE; the figures corresponding to that of 2.4 mg/m³ in the table for coal dust, is 4.5 mg/m³.
PEL: (Quartz (Total Dust)) [OSHA Z3]30 / (%SiO(2) + 2) mg/m³
TLV TWA: 0.05 mg/m³ (respirable dust) A2
The concentration of respirable dust for application of this limit is to be determined from the fraction that penetrates a separator whose size collection efficiency is described by a cumulative lognormal function with a median aerodynamic diameter of 4.0 µm (+-) 0.3 µm and with a geometric standard deviation of 1.5 µm (+-) 0.1 µm, i.e..generally less than 5 µm.
WARNING: For inhalation exposure ONLY:
This substance has been classified by the ACGIH as A2 Suspected Human Carcinogen.
ES TWA: 0.2 mg/m³
MEL TWA: 0.3 mg/m³ (respirable dust)
Because the margin of safety of the quartz TLV is not known with certainty and given the associated link between silicosis and lung cancer it is recommended that quartz concentrations be maintained as far below the TLV as prudent practices will allow.

CRISTOBALITE:
TLV TWA: 0.05 mg/m³ (R) Cristobalite [ACGIH]
PEL: (Cristobalite (Respirable)) [OSHA Z3]250 / (2 * (%SiO(2)+5)) mppcf
PEL: (Cristobalite (Respirable)) [OSHA Z3]10 / (2*(%SiO(2)+2)) mg/m³
PEL: (Cristobalite (Total Dust)) [OSHA Z3]30 / (2* (%SiO(2) + 2)) mg/m³
TLV TWA: 0.05 mg/m³ (respirable dust)
The concentration of respirable dust for application of this limit is to be determined from the fraction that penetrates a separator whose size collection efficiency is described by a cumulative lognormal function with a median aerodynamic diameter of 4.0 µm (+-) 0.3 µm and with a geometric standard deviation of 1.5 µm (+-) 0.1 µm, i.e..generally less than 5 µm.
ES TWA: 0.1 mg/m³
IDLH Level: 25 mg/m³
Cristobalite produces a more severe response, than does quartz, on lung function and disease. The fibrosis produced by cristobalite is diffuse rather than nodular. The TLV-TWA is thought to be protective against pulmonary fibrosis associated with exposure at higher levels. NIOSH has designated cristobalite as a potential occupational carcinogen.

MAGNESIUM OXIDE:

continued...

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION ...

TLV TWA: 10 mg/m³ (Inhalable fraction) A4 [ACGIH]
PEL TWA: 15 mg/m³ [OSHA Z1]
TLV TWA: 10 mg/m³ inhalable fraction A4
NOTE: This substance has been classified by the ACGIH as A4 NOT classifiable as causing Cancer in humans
MAK value: 4 mg/m³
- measured as the respirable fraction of the aerosol
MAK values, and categories and groups are those recommended within the Federal Republic of Germany
as magnesium oxide fume
ES TWA: 10 mg/m³
TLV TWA: 10 mg/m³

AMMONIUM PHOSPHATE, MONOBASIC:
TLV TWA: 10 mg/m³ (Value for particulate matter containing no asbestos and <1% crystalline silica,Inhalable fraction) [ACGIH]
TLV TWA: 3 mg/m³ (Value for particulate matter containing no asbestos and <1% crystalline silica,Respirable fraction) [ACGIH]
Dusts not otherwise classified, as inspirable dust;
ES TWA: 10 mg/m³

PERSONAL PROTECTION

EYE

- Safety glasses with side shields
- Chemical goggles.
- Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them.

HANDS/FEET

No special equipment needed when handling small quantities.
OTHERWISE: Wear general protective gloves, eg. light weight rubber gloves.

OTHER

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

RESPIRATOR

Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
10 x ES	P1 Air-line*	- -	PAPR-P1 -
50 x ES	Air-line**	P2	PAPR-P2
100 x ES	-	P3	-
		Air-line*	-
100+ x ES	-	Air-line**	PAPR-P3

continued...

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION ...

* - Negative pressure demand ** - Continuous flow

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required. For further information consult site specific CHEMWATCH data (if available), or your Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection.
Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection.
An approved self contained breathing apparatus (SCBA) may be required in some situations.
Provide adequate ventilation in warehouse or closed storage area.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Powder, odourless; does not mix with water.

PHYSICAL PROPERTIES

Does not mix with water.
Sinks in water.

Molecular Weight: Not Applicable
Melting Range (°C): >1500
Solubility in water (g/L): Immiscible
pH (1% solution): Not Available
Volatile Component (%vol): Not Available
Relative Vapour Density (air=1): Not Available
Lower Explosive Limit (%): Not Applicable
Autoignition Temp (°C): Not Available
State: Divided Solid

Boiling Range (°C): Not Available
Specific Gravity (water=1): 1.1 - 1.2
pH (as supplied): 5 approx
Vapour Pressure (kPa): Not Available
Evaporation Rate: Not Available
Flash Point (°C): Not Applicable
Upper Explosive Limit (%): Not Applicable
Decomposition Temp (°C): 200

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

continued...

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

(No Oral LD50, any animal species) The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. The material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (eg. liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.

EYE

There is some evidence to suggest that this material can cause eye irritation and damage in some persons.

SKIN

The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.
Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

Inhalation of dusts, generated by the material during the course of normal handling, may be damaging to the health of the individual.
The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation of dusts, or fumes, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.
Acute silicosis occurs under conditions of extremely high silica dust exposure particularly when the particle size of the dust is small. The disease is rapidly progressive and spreads widely through the lungs within months of the initial exposure and causing death within 1 to 2 years.
Effects on lungs are significantly enhanced in the presence of respirable particles.

CHRONIC HEALTH EFFECTS

Repeated exposures, in an occupational setting, to high levels of fine- divided dusts may produce a condition known as pneumoconiosis which is the lodgement of any inhaled dusts in the lung irrespective of the effect. This is particularly true when a significant number of particles less than 0.5 microns (1/50,000 inch), are present. Lung shadows are seen in the X-ray. Symptoms of pneumoconiosis may include a progressive dry cough, shortness of breath on exertion, increased chest expansion, weakness and weight loss. As the disease

continued...

Section 11 - TOXICOLOGICAL INFORMATION ...

progresses the cough produces a stringy mucous, vital capacity decreases further and shortness of breath becomes more severe. Pneumoconiosis is the accumulation of dusts in the lungs and the tissue reaction in its presence. It is further classified as being of noncollagenous or collagenous types. Noncollagenous pneumoconiosis, the benign form, is identified by minimal stromal reaction, consists mainly of reticulin fibres, an intact alveolar architecture and is potentially reversible. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Harmful: danger of serious damage to health by prolonged exposure through inhalation. This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects. This has been demonstrated via both short- and long-term experimentation. On the basis of epidemiological data, it has been concluded that prolonged inhalation of the material, in an occupational setting, may produce cancer in humans.

Dentsply Deguvest HFG / F / CF

Not available. Refer to individual constituents.
unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances

SILICA CRYSTALLINE - QUARTZ:

TOXICITY	IRRITATION
Inhalation (human)LCLo:0.3 mg/m3/10Y	Nil reported
Inhalation (human)TCLo:16 mppcf*/8H/17.9Y - Intermittent; focal fibrosis, (	(pneumoconiosis), cough, dyspnoea
50 mg/m3/6H/71W	- Intermittent; liver - tumours.

* Millions of particles per cubic foot (based on impinger samples counted by light field techniques).
WARNING: For inhalation exposure ONLY: This substance has been classified by the IARC as Group 1: CARCINOGENIC TO HUMANS
NOTE : the physical nature of quartz in the product determines whether it is likely to present a chronic health problem. To be a hazard the material must enter the breathing zone as respirable particles.

CRISTOBALITE:

TOXICITY	IRRITATION
Nil reported	Inhalation (human) TCLo: 400 particles/cc/4y-I Inhalation (human) TCLo: 16 mppcf*/8h/17.9y-I * millions of particles per cubic foot

WARNING: For inhalation exposure ONLY: This substance has been classified by the IARC as Group 1: CARCINOGENIC TO HUMANS

MAGNESIUM OXIDE:

TOXICITY	IRRITATION
Inhalation (human) TCLo: 400 mg/m3	Nil reported

AMMONIUM PHOSPHATE, MONOBASIC:
No significant acute toxicological data identified in literature search.

continued...

Section 12 - ECOLOGICAL INFORMATION

DO NOT discharge into sewer or waterways.

Section 13 - DISPOSAL CONSIDERATIONS

- Consult manufacturer for recycling options and recycle where possible .
- Consult State Land Waste Management Authority for disposal.
- Incinerate residue at an approved site.
- Recycle containers if possible, or dispose of in an authorised landfill.

Puncture containers to prevent re-use and bury at an authorised landfill.

Section 14 - TRANSPORTATION INFORMATION

Shipping Name:
None
Dangerous Goods Class: None
UN/NA Number: None
ADR Number: None
Packing Group: None
Labels Required:
Additional Shipping Information:
International Transport Regulations:
IMO: None

HAZCHEM

None

Section 15 - REGULATORY INFORMATION

POISONS SCHEDULE

None

REGULATIONS

The following substances are found on/in Australia - South Australia - Hazardous Substances Requiring Health Surveillance:
silica crystalline - quartz (CAS: 14808-60-7)
The following substances are found on/in Australia Hazardous Substances Requiring Health Surveillance:
silica crystalline - quartz (CAS: 14808-60-7)
The following substances are found on/in Australian Inventory of Chemical Substances (AICS):
silica crystalline - quartz (CAS: 14808-60-7)
cristobalite (CAS: 14464-46-1)
magnesium oxide (CAS: 1309-48-4)
ammonium phosphate, monobasic (CAS: 7722-76-1)

continued...

Section 16 - OTHER INFORMATION

Issue Date: Thu 9-Sep-2004
Print Date: Tue 14-Sep-2004