

1. PRODUCT / COMPANY IDENTIFICATION

1.1 Manufacturer's Name & Address :	ANGELUS INDÚSTRIA DE PRODUTOS ODONTOLÓGICOS LTDA - CNPJ 00.257.992/0001-37 - RUA GOIÁS, 2200 - JD QUEBEC - CEP 86060-250 - LONDRINA - PARANA - BRAZIL.	1.2 Emergency Contact :	+55 43 2101-3200 or sac@angelus.ind.br
1.3 EC Representative :	EUROPEAN MANDATORY OR EU REPRESENTATIVE MARCO ANTONIO CANONICO E SILVA E-MAIL: EUREPRESENTATIVE@ANGELUS.IND.BR FREGUESIA FIGUEIRA LUGAR DO SOUTO, 4575 ENTRE RIOS - PORTUG	1.4 Chemical Family :	CALCIUM COMPOUNDS
		1.5 Chemical Name and Synonyms :	PORTLAND CEMENT CLINKER (CAS # 65997-15-1), HYDRAULIC CEMENT
1.6 Trade Name and Synonyms:	MTA-ANGELUS® REPAIR ENDODONTIC CEMENT MTA-WHITE® REPAIR ENDODONTIC CEMENT		
1.7 Prepared by	ROBERTO QUEIROZ MARTINS ALCANTARA		

2. COMPOSITION INFORMATION

2.1 Description	MTA-ANGELUS AND MTA-WHITE CONSIST ON THE MAJORITY OF FINELY GROUND PORTLAND CEMENT CLINKER. THE PORTLAND CEMENT CLINKER IS MADE BY HEATING TO HIGH TEMPERATURE A MIXTURE OF SUBSTANCES. PORTLAND CEMENT CLINKER IS ESSENTIALLY HYDRAULIC CALCIUM SILICATES CONTAINED IN A CRYSTALLINE MASS, NOT SEPARABLE INTO INDIVIDUAL COMPONENTS.		
2.2 Major compounds are :	3CaO.SiO ₂	Tricalcium Silicate	CAS # 12168-85-3
	2CaO.SiO ₂	Dicalcium Silicate	CAS # 10034-77-2
	3CaO.Al ₂ O ₃	Tricalcium Aluminate	CAS # 12042-78-3
	4CaO.Al ₂ O ₃ .Fe ₂ O ₃	Tetracalcium Aluminoferrite	CAS # 12068-35-8
	Bi ₂ O ₃	Bismuth Oxide	CAS # 1304-76-3

HAZARDOUS INGREDIENTS

COMPONENT	OSHA PEL (8-hour TWA)	ACGIH TLV-TWA (1995-1996)	NIOSH REL (8-Hour TWA)
Portland Cement (CAS # 65997-15-1) 80% by weight	5 mg respirable dust/m ³ 15 mg total dust/m ³	10 mg total dust/m ³	-
Iron oxide (CAS # 1309-37-1) 0 to 15% by weight	10 mg/m ³	5 mg/m ³	-
Calcium carbonate (CAS # 1317-65-3) 0 to 5% by weight	5 mg respirable dust/m ³ 15 mg total dust/m ³	10 mg total dust/m ³	-
Magnesium oxide (CAS # 1309-48-4) 0 to 5% by weight	15 mg total dust/m ³	10 mg total dust/m ³	-
Calcium oxide (CAS # 1306-78-8) 0 to 5% by weight	5 mg/m ³	2 mg/m ³	-
Crystalline silica (CAS # 14808-60-7) 0 to 0.1% by weight	10 mg of respirable dust/m ³ % SiO ₂ + 2 30 mg of total dust/m ³ % SiO ₂ + 2 250 million particles/ft ³ % SiO ₂ + 5	0.10 mg respirable quartz/m ³	0.05 mg respirable quartz dust/m ³
Trace Ingredients	MTA-ANGELUS AND MTA-WHITE MAY CONTAIN UP TO 0.75% INSOLUBLE RESIDUE, SOME OF WHICH MAY BE FREE CRYSTALLINE SILICA. OTHER TRACE CONSTITUENTS MAY INCLUDE CALCIUM OXIDE, FREE MAGNESIUM OXIDE, POTASSIUM AND SODIUM SULFATE COMPOUNDS.		

3. HAZARD IDENTIFICATION

MTA-ANGELUS IS A LIGHT GRAY AND MTA-WHITE IS A WHITE POWDER. WHEN IN CONTACT WITH MOISTURE IN EYES OR ON SKIN, OR WHEN MIXED WITH WATER, THE PRODUCT BECOMES HIGHLY CAUSTIC (PH>12) AND WILL DAMAGE OR BURN (AS SEVERLY AS THIRD-DEGREE) THE EYES OR SKIN. INHALATION MAY CAUSE IRRITATION TO THE MOIST MUCOUS MAMBRANES OF THE NOSE, THROAT AND UPPER RESPIRATORY SYSTEM OR MAY CAUSE OR MAY AGGRAVATE CERTAIN LUNG DISEASES OR CONDITIONS. HOWEVER A SINGLE SHORT-TERM EXPOSURE TO THE SMALL QUANTITIES INDICATED IN EACH APLICATION IS NOT LIKE TO CAUSE SERIOUS HARM. USE EXPOSURE CONTROLS OR PERSONAL PROTECTION METHODS DESCRIBED IN SECTION 08.

Potential health effects:	POTENTIAL HEALTH EFFECTS MAY VARY DEPENDING UPON THE DURATION AND DEGREE OF EXPOSURE. TO REDUCE OR ELIMINATE HEALTH HAZARDS ASSOCIATED WITH THIS PRODUCT, USE EXPOSURE CONTROLS OR PERSONAL PROTECTION METHODS AS DESCRIBED IN SECTION 08.
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	Acute	Chronic	Acute/Chronic
3.1 Eye Contact	-	-	EXPOSURE TO AIRBORNE DUST MAY CAUSE IMMEDIATE OR DELAYED IRRITATION OR INFLAMMATION OF THE CORNEA. EYE CONTACT BY LARGER AMOUNTS OF DRY POWDER OR SPLASHES OF WET PRODUCT MAY CAUSE EFFECTS RANGING FROM MODERATE EYE IRRITATION TO CHEMICAL BURNS AND BLINDNESS.
3.2 Skin Contact	EXPOSURE TO DRY PRODUCT MAY CAUSE DRYING OF THE SKIN WITH CONSEQUENT MILD IRRITATION OR MORE SIGNIFICANT EFFECTS ATTRIBUTABLE TO AGGRAVATION OF MOIST CONDITIONS. DISCOMFORT OR PAIN CANNOT BE RELIED UPON TO ALERT A PERSON TO A HAZARDOUS SKIN EXPOSURE.	MTA-ANGELUS AND MTA-WHITE COMING IN CONTACT WITH WET SKIN OR EXPOSURE TO WET MTA-ANGELUS AND MTA-WHITE MAY CAUSE MORE SEVERE SKIN EFFECTS, INCLUDING THICKENING, CRACKING OR FISSURING OF THE SKIN. PROLONGED EXPOSURE CAN CAUSE SEVERE SKIN DAMAGE IN THE FORM OF CHEMICAL (CAUSTIC) BURNS.	SOME INDIVIDUALS MAY EXHIBIT AN ALLERGIC RESPONSE UPON EXPOSURE TO THE PRODUCT. THE RESPONSE MAY APPEAR IN A VARIETY OF FORMS RANGING FROM A MILD RASH TO SEVERE SKIN ULCERS.
3.3 Inhalation	EXPOSURE TO PRODUCT MAY CAUSE IRRITATION TO THE MOIST MUCOUS MEMBRANES OF THE NOSE, THROAT AND UPPER RESPIRATORY SYSTEM. PRE-EXISTING UPPER RESPIRATORY AND LUNG DISEASES MAY BE AGGRAVATED BY INHALATION OF THE PRODUCT.	INHALATION EXPOSURE TO FREE CRYSTALLINE SILICA MAY CAUSE DELAYED LUNG INJURY INCLUDING SILICOSIS, A DISABLING AND POTENTIALLY FATAL LUNG DISEASE, AND/OR CAUSE OR AGGRAVATE OTHER LUNG DISEASES OR CONDITIONS.	-
3.4 Ingestion	-	-	INTERNAL DISCOMFORT OR ILL EFFECTS ARE POSSIBLE IF LARGE QUANTITIES ARE SWALLOWED.
3.5 Carcinogenic potential	THE INGREDIENTS USED TO MANUFACTURE MTA-ANGELUS AND MTA-WHITE IS NOT RECOGNIZED AS A CARCINOGEN BY NTP, PSHA, OR IARC. HOWEVER, IT MAY CONTAIN TRACE AMOUNTS OF SUBSTANCES RECOGNIZED AS CARCINOGENS BY THESE ORGANIZATIONS. IN ADDITION, IARC CLASSIFIES CRYSTALLINE SILICA, A TRACE CONSTITUENT, AS A KNOWN HUMAN CARCINOGEN (GROUP I). NTP HAS CHARACTERIZED RESPIRABLE SILICA AS "REASONABLY ANTICIPATED TO BE A CARCINOGEN." (SEE ALSO SECTION 15.)		

4. EMERGENCY AND FIRST AID MEASURES :

4.1 Eyes:	IMMEDIATELY FLUSH EYE THOROUGHLY WITH WATER. CONTINUE FLUSHING EYE FOR AT LEAST 15 MINUTES, INCLUDING UNDER LIDS, TO REMOVE ALL PARTICLES. CALL PHYSICIAN IMMEDIATELY.	4.2 Skin:	WASH SKIN WITH COOL WATER AND PH-NEUTRAL SOAP OR A MILD DETERGENT. SEEK MEDICAL TREATMENT IF IRRITATION OR INFLAMMATION DEVELOPS OR PERSISTS. SEEK IMMEDIATE MEDICAL TREATMENT IN THE EVENT OF BURNS.
4.3 Inhalation:	REMOVE PERSON TO FRESH AIR. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. SEEK MEDICAL HELP IF COUGHING AND OTHER SYMPTOMS DO NOT SUBSIDE. INHALATION OF LARGE AMOUNTS OF MTA-ANGELUS OR MTA-WHITE REQUIRE IMMEDIATE MEDICAL ATTENTION.	4.4 Ingestion:	DO NOT INDUCE VOMITING. IF CONSCIOUS, HAVE THE VICTIM DRINK PLENTY OF WATER AND CALL A PHYSICIAN IMMEDIATELY.

5. FIRE FIGHTING MEASURES.

5.1 Extinguishing media:	NONE REQUIRED; DOES NOT BURN.	5.2 Special fire-fighting procedures:	NONE. (ALTHOUGH PRODUCT POSE NO FIRE-RELATED HAZARD, A SELF-CONTAINED BREATHING APPARATUS IS RECOMMENDED TO LIMIT EXPOSURES TO COMBUSTION PRODUCTS WHEN FIGHTING ANY FIRE)
5.3 Hazardous combustion products:	NONE	5.4 Usual fire and explosion hazards:	NONE

6. ACCIDENTAL RELEASE MEASURES.

COLLECT DRY MATERIAL USING SCOOP. AVOID ACTIONS THAT CAUSE DUST TO BECOME AIRBORNE. AVOID INHALATION OF DUST AND CONTACT WITH SKIN. WEAR APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT AS DESCRIBED IN SECTION 8.

SCRAPE UP WET MATERIAL AND PLACE IN AN APPROPRIATE CONTAINER. ALLOW THE MATERIAL TO "DRY" BEFORE DISPOSAL. DO NOT ATTEMPT TO WASH MTA-ANGELUS AND MTA-WHITE DOWN DRAINS.

7. PRECAUTIONS FOR HANDLING AND STORAGE.

7.1 Handling:	HANDLE IN A MANNER TO AVOID AIRBORNE DUST. USE ADEQUATE EXHAUST VENTILATION TO MINIMIZE AIRBORNE DUSTS. PROMPTLY REMOVE DUSTY CLOTHING OR CLOTHING WHICH PRODUCT AND LAUNDER BEFORE REUSE. AVOID CONTACT WITH AMMONIA, AMMONIA NITRATE AND CHLORINE OR CHLORINE CONTAINING ITEMS. USE EXPOSURE CONTROL AND PERSONAL PROTECTION METHODS AS DESCRIBED IN SECTION 08.
7.2 Storage	STORE IN DRY AREA. NORMAL TEMPERATURES AND PRESSURES DO NOT AFFECT THE MTA-ANGELUS AND MTA-WHITE. STORE AWAY FROM FOOD AND DRINKS. DO NOT STORE NEAR AMMONIA, AMMONIA NITRATE AND CHLORINE OR CHLORINE CONTAINING ITEMS.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Respiratory protection:	USE LOCAL EXHAUST OR GENERAL DILUTION VENTILATION TO CONTROL DUST LEVELS BELOW APPLICABLE EXPOSURE LIMITS. MINIMIZE DISPERSAL OF DUST INTO THE AIR. IF LOCAL OR GENERAL VENTILATION IS NOT ADEQUATE TO CONTROL DUST LEVELS BELOW APPLICABLE EXPOSURE LIMITS OR WHEN DUST CAUSES IRRITATION OR DISCOMFORT, USE MSHA/NIOSH APPROVED RESPIRATORS, DESCRIBED IN SECTION 2.
8.2 Eye protection:	WEAR SAFETY GLASSES WITH THE EYES. IN EXTREMELY DUSTY ENVIRONMENTS, WEAR TIGHT-FITTING UNVENTED OR INDIRECTLY VENTED GOGGLES TO AVOID EYE IRRITATION OR INJURY. CONTACT LENSES SHOULD NOT BE WORN WHEN HANDLING WITH MTA-ANGELUS AND MTA-WHITE.
8.3 Skin protection:	WEAR PROTECTIVE CLOTHING TO PREVENT SKIN CONTACT. PROMPTLY REMOVE CLOTHING DUSTY WITH DRY MTA-ANGELUS AND MTA-WHITE OR CLOTHING DAMPENED WITH MOISTURE MIXED WITH THE PRODUCT, AND LAUNDER BEFORE REUSE. IF CONTACT OCCURS, WASH AREAS CONTACTED BY MATERIAL WITH PH NEUTRAL SOAP AND WATER.

9. PHISICAL/CHEMICAL DATA

9.1 Appearance/Odor:	GRAY, WHITE POWDER, ODERLESS	9.2 Physical State:	SOLID (POWDER)
9.3 Boiling point:	> 1000 f C	9.4 Melting point:	NOT APLICABLE
9. 5 Vapor pressure:	NOT APLICABLE	9.6 Vapor density:	NOT APLICABLE
9.7 pH (in water): (ASTM D 1293-95)	12 TO 13	9.8 Solubility in water:	SLIGHTLY SOLUBE (0.1% TO 1.0%)
9.9 Specific gravity (H2O=1.0):	3.15	9.10 Evaporate rate:	NOT APLICABLE
9.11 Flash point:	NONE	9.12 Lower explosive limit:	NONE
9.13 Auto ignition temperature:	NOT COMBUSTIBLE	9.14 Upper explosive limit:	NONE
9.15 Flammable limits:	NOT APLICABLE	9.16 Special fire fighting procedures:	NONE
9.17 Extinguishing media:	NOT COMBUSTIBLE	9.18 Unusual fire and explosion hazards:	NONE
9.17 Hazardous combustion products:	NONE		

10. STABILITY AND REACTIVITY DATA

10.1 Stability:	MTA-ANGELUS AND MTA-WHITE IS STABLE. KEEP DRY UNTIL USED.
10.2 Conditions to avoid:	UNINTENTIONAL CONTACT WITH WATER. CONTACT WITH WATER WILL RESULT IN HYDRATION AND PRODUCES (CAUSTIC) CALCIUM HYDROXIDE AND PREMATURE SETTING.
10.3 Incompatibility:	WET MTA-ANGELUS AND MTA-WHITE IS ALKALINE. AS SUC, IT IS INCOMPATIBLE WITH ACIDS, AMMONIUM SALTS AND ALUMINUM METAL. ENSURE THAT LOCAL INFLAMATION (ACID ENVIROMENT) WAS TREATED BEFORE USING THE MAERIAL IN ENDODONTICS DISEASES.
10.4 Hazardous decomposition:	WILL NOT OCCUR. HOWEVWE ADDITION OF WATER TO THE POWDER RESULTS IN HIDRATATION AND PRODUCES (CAUSTIC) CALCIUM HYDROXIDE.
10.5 Hazardous polymerization	WILL NOT OCCUR.

11. TOXICOLOGICAL INFORMATION.

NO TOXICOLOGICAL TESTING OF THIS SPECIAL PRODUCT HAS BEEN DONE.

12. ECOLOGICAL INFORMATION.

12.1 Ecotoxicity: NO RECOGNIZED UNUSUAL TOXICITY TO PLANTS OR ANIMALS.

13. DISPOSAL.

COMPLY WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS FOR DISPOSAL OF UNUSABLE OR CONTAMINATED MATERIALS. DISPOSE OF PACKAGING/CONTAINERS ACCORDING TO LOCAL, STATE AND FEDERAL REGULATIONS.

14. TRANSPORTATION INFORMATION.

MTA-ANGELUS AND MTA-WHITE IS NOT HAZARDOUS UNDER REGULATIONS.

15. OTHER REGULATORY INFORMATION.

15.1 Status under US OSHA Hazard Communication Rule 29 CFR 1910.1200:	MTA-ANGELUS AND MTA-WHITE IS CONSIDERED A HAZARDOUS CHEMICAL UNDER THIS REGULATION AND SHOULD BE INCLUDED IN THE EMPLOYER'S HAZARD COMMUNICATION PROGRAM.
15.2 Status Under CERCLA/Superfund, 40 CFR 117 and 302.	NOT LISTED.
15.3 Hazard Category under SARA (Title III), Sections 311 and 312:	MTA-ANGELUS AND MTA-WHITE QUALIFIES AS A HAZARDOUS SUBSTANCE WITH DELAYED HEALTH EFFECTS.
15.4 Status under SARA (Title III), Section 313:	NOT SUBJECT TO REPORTING REQUIREMENTS UNDER SECTION 313.
15.5 Status under TSCA (as of May 1997)	SOME SUBSTANCES IN MTA-ANGELUS AND MTA-WHITE ARE THE TSCA INVENTORY LIST.
15.6 Status under the Federal Hazardous Substances Act:	MTA-ANGELUS AND MTA-WHITE IS A HAZARDOUS SUBSTANCE SUBJECT TO STATUTES PROMULGATED UNDER THE SUBJECT.
15.7 Status under Canadian Environmental Protection Act:	NOT LISTED.
15.8 Status under Canadian WHMIS:	MTA-ANGELUS AND MTA-WHITE IS CONSIDERED TO BE A HAZARDOUS MATERIAL UNDER THE HAZARDOUS PRODUCTS ACT AS DEFINED BY THE CONTROLLED PRODUCTS REGULATIONS (CLASS D2A, E-CORROSIVE MATERIAL) AND SUBJECT TO THE REQUIREMENTS OF WHMIS.

16. OTHER INFORMATION

THIS MSDS PROVIDES INFORMATION OF MTA-ANGELUS AND MTA-WHITE. THE INFORMATION PROVIDED HEREIN IS BELIEVED BY ANGELUS INDUSTRIA E COMÉRCIO DE PRODUTOS ODONTOLÓGICOS LTDA, TO BE ACCURATE AT THE TIME OF PREPARATION OR PREPARED FROM SOURCES BELIEVED TO BE RELIABLE. HEALTH AND SAFETY PRECAUTIONS IN THIS DATA SHEET MAY NOT BE ADEQUATE FOR ALL INDIVIDUALS OR SITUATIONS. USERS HAVE THE PRODUCT, TO DETERMINE THE SUITABILITY OF THE PRODUCT FOR ITS INTENDED USE, AND TO UNDERSTAND POSSIBLE HAZARDS ASSOCIATED WITH MIXING MTA-ANGELUS AND MTA-WHITE WITH OTHER MATERIALS. SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY ANGELUS INDÚSTRIA DE COMÉRCIO DE PRODUTOS ODONTOLÓGICOS LTDA.

17. SECTION I

MTA-ANGELUS WATER AND MTA-WHITE WATER.
THIS PRODUCT CONTAINS NO HAZARDOUS COMPONENTS.