

CERTANIUM ALLOYS & RESEARCH CO.  
4500 EUCLID AVENUE  
CLEVELAND, OHIO 44103

EMERGENCY/INFORMATION TELEPHONE:

216/391-8300

MAIL TO:

LEES SUMMIT R-7 SCHOOL DIST.  
1121 SE HAMBLER RD  
LEES SUMMIT MO 64081

FORMULA: 981A

MSDS EFFECTIVE: 01/30/97

SUPERSEDES MSDS OF: 02/08/94

COF: 354457

INVOICE: 058627

SDS KEY: 0583740

SECTION I - PRODUCT IDENTIFICATION

PART NUMBER: 16590  
PRODUCT NAME: CERTANIUM 981 CAST IRON FLUX  
TRADE NAME/SYNONYMS: CERTANIUM 981  
CHEMICAL FAMILY: CAST IRON FLUX

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS NO.	WT %	PEL	TLV	STEL	UNITS	LC50, PPM	LD50, MG/KG
BORIC ACID	10043-35-3	50-90	N/A	N/A	N/A		N/A	RAT I 2660 M A >2430
SODIUM CARBONATE	00497-19-8	10-50	N/A	N/A	N/A		RAT 532	RAT I 4090

SECTION III - PHYSICAL DATA

BOILING PT DEG F/C: N/A	SPECIFIC GRAVITY: 3.1
VAPOR PRESSURE (MM HG): N/A	%VOLATILE VOLUME: N/A
VAPOR DENSITY (AIR=1): N/A	EVAPORATION RATE: N/A
SOLUBILITY IN WATER: N/A	WATER/OIL DIST COEFF: N/A
PHYSICAL STATE: POWDER	PH: N/A
FREEZE PT DEG F/C: N/A	THRESHOLD ODOR, PPM: N/A
APPEARANCE AND ODOR: POWDER - LITTLE ODOR	

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

CLASSIFICATION: N/A NFPA RATING: 2,0,0 HMIS: 2,0,0  
COMBUSTION PRODUCTS: SEE SECTION IV-HAZARDOUS DECOMPOSITION PRODUCTS  
FLASH POINT DEG F/C: N/A LEL%: N/A UEL%: N/A  
EXTINGUISHING MEDIA: FOAM, DRY CHEMICAL, CO2  
AUTO IGN. TEMP DEG F/C: N/A  
SPECIAL FIRE FIGHTING PROCEDURES:  
FIREFIGHTERS SHOULD WEAR SELF-CONTAINED BREATHING EQUIPMENT.  
UNUSUAL FIRE AND EXPLOSION HAZARDS:  
CONTACT WITH FLAME OR HOT SURFACES MAY PRODUCE TOXIC GASES.  
EXPLOSIVE POWER: N/A IMPACT SENSITIVE: NO  
BURNING RATE: N/A STATIC SENSITIVE: NO

\*\*\*CONTINUED ON NEXT PAGE\*\*\*

## ===== SECTION V - HEALTH HAZARD DATA =====

ROUTES OF ENTRY: SKIN CONTACT, EYE, INHALATION

EFFECTS OF OVEREXPOSURE:

MAY CAUSE EYE & SKIN IRRITATION. PROLONGED & REPEATED INHALATION MAY BE HARMFUL TO RESPIRATORY SYSTEM AND CENTRAL NERVOUS SYSTEM. SHORT TERM OVER-EXPOSURE TO WELDING FUMES MAY RESULT IN DIZZINESS, NAUSEA OR DRYNESS OR IRRITATION OF NOSE, THROAT AND EYES. INGESTION CAUSES NAUSEA, CRAMPS, VOMITING, DIARRHEA.

ANY SUSPECTED CARCINOGEN = OR &gt; 0.1%?: NO

EMERGENCY AND FIRST AID PROCEDURES:

EYES: IMMEDIATELY FLUSH WITH PLENTY OF WATER FOR 15 MIN. & CALL PHYSICIAN.  
SKIN: WASH THOROUGHLY WITH PLENTY OF SOAP & WATER. INHALATION: IF AFFECTED, REMOVE TO FRESH AIR. INGESTION: SEEK PHYSICIAN IMMEDIATELY, SHOW MSDS OR LABEL. INDUCE VOMITING. GIVE 1-2 GLASSES OF WATER.

## ===== SECTION VI - REACTIVITY DATA =====

STABLE: YES CONDITIONS TO AVOID:

INCOMPATIBILITY (MATERIALS TO AVOID): NO

HAZARDOUS DECOMPOSITION PRODUCTS:

FUMES & GASES FROM WELDING & HIGH TEMPERATURE CUTTING CANNOT BE CLASSIFIED SIMPLY. THE COMPOSITION & QUANTITY OF BOTH DEPEND ON THE ALLOY BEING WELDED, THE PROCESS, PROCEDURES, & ELECTRODES USED. THE CONSTITUENTS OF THE FUME MAY BE DIFFERENT FROM THE INGREDIENTS LISTED IN SECTION 2, & MAY INCLUDE PARTICLES CONTAINING IRON, MANGANESE, SILICON, CHROMIUM, NICKEL, OR OTHER AMORPHOUS SLAGS. THE GASES MAY INCLUDE CARBON MONOXIDE, OZONE, METAL OXIDES, OR METAL FLUORIDES. THE FOLLOWING MG/M3 EXPOSURE LIMITS APPLY TO THOSE FUMES & GASES WHICH MAY BE FOUND IN THE WELDING OR HIGH TEMPERATURE CUTTING ENVIRONMENT.

SUBSTANCE	PEL	TLV	SUBSTANCE	PEL	TLV
ALUMINUM FUME (AL)	5.0	5.0	MANGANESE FUME (MN)	1.0	1.0
CARBON MONOXIDE (CO)	40.0	29.0	MOLYBDENUM (MO)	5.0	5.0
CHROMIUM (CR2O3) (*PPM)	0.1*	0.05	NICKEL (NI)	0.1	0.1
COBALT FUME	0.05	0.02	NITROGEN DIOXIDE (NO2)	1.8	5.6
COPPER FUME (CU)	0.1	0.2	OZONE (O3)	0.2	0.2
FLUORIDES (AS F)	2.5	2.5	WELDING FUMES (NOC)	5.0	5.0
IRON OXIDE FUMES (AS FE)	10.0	5.0			

HAZARDOUS POLYMERIZATION: NO

## ===== SECTION VII - SPILL OR LEAK PROCEDURES =====

LISTED IN: SARA TITLE III; #302: NO #304, CERCLA: NO #313: NO

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

CONTAIN &amp; PICK UP WASTE MATERIALS. PUT IN A SEALED APPROVED CONTAINER.

DISPOSAL METHOD:

DISPOSE OF WASTES IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS.

\*\*\*CONTINUED ON NEXT PAGE\*\*\*

## ===== SECTION VIII - SAFE HANDLING AND PROTECTION INFORMATION =====

VENTILATION-LOCAL: REQUIRED SPECIAL:WELDERS ANSI Z49.1  
MECHANICAL: REQUIRED OTHER: N/A  
PROTECTIVE GLOVES: WELDERS PROTECTIVE GLOVES EYE PROTECTION:FACE SHIELD/LENS  
PRECAUTIONS IN USE:  
WEAR WELDERS LEATHER APRON, SLEEVES AND LEGGINGS. WEAR DUST MASK.  
ESTIMATED LD50, MG/KG: NO  
ESTIMATED LC50, PPM: NO  
SENSITIZATION: NO  
IRRITANT: NO SYNERGISTIC AGENTS: NO

## ===== SECTION IX - SPECIAL PRECAUTIONS =====

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:  
ARCS, SPARKS & FLAME MAY BE A SOURCE OF IGNITION OF COMBUSTIBLE MATERIALS.  
USE ONLY IN WELL VENTILATED AREAS. DO NOT BREATHE DUST OR FUMES. IF VENTI-  
LATION IS INADEQUATE, WEAR APPROVED RESPIRATORY EQUIPMENT. AVOID CONTACT  
WITH EYES, SKIN & CLOTHING. WASH THOROUGHLY AFTER USING. IN CASE OF ACCIDENT  
OR ILLNESS, SEEK PHYSICIAN IMMEDIATELY, SHOW LABEL OR MSDS.  
OTHER PRECAUTIONS:  
KEEP OUT OF REACH OF CHILDREN. ALWAYS READ & FOLLOW DIRECTION ON PRODUCT  
LABEL. ADDITIONAL TECHNICAL DATA SHEETS AND/OR MATERIAL SAFETY DATA SHEETS  
(MSDS) ARE AVAILABLE UPON REQUEST. FOR PROFESSIONAL & INDUSTRIAL USE ONLY.

\*\*\*\*\*

## SYMBOLS, ABBREVIATIONS AND NOTATIONS:

#=LISTED IN SARA TITLE III SECTION 313; @=NON-HAZARDOUS INGREDIENT AMONG THE  
5 MOST PREDOMINANT SUBSTANCES; +=CONTAINS ENCAPSULATED SILICA-CRYSTALLINE OR  
CARBON BLACK.

NORMAL PRODUCT USAGE SHOULD NOT RESULT IN RESPIRABLE DUST THAT WOULD BE  
HAZARDOUS TO THE RESPIRATORY SYSTEM; N/A=NOT AVAILABLE OR APPLICABLE; \*=IF  
FOUND AS DUST, MIST OR FUME; C=CEILING LIMIT; S=SKIN DESIGNATION; M=HUMAN;  
RAB=RABBITS; GPG=GUINEA PIGS; MIC=MICE; I=INGESTION; A=SKIN ABSORPTION;  
LO=LITTLE OBSERVABLE EFFECT; NO=NO EFFECT; PEL=OSHA PERMISSIBLE EXPOSURE  
LIMIT; TLV=ACGIH THRESHOLD LIMIT VALUE; STEL=SHORT TERM EXPOSURE LIMIT.

\*\*\*\*\*

ALL COMPONENTS OF THIS PRODUCT ARE LISTED OR ARE EXEMPT FROM LISTING ON THE  
TSCA INVENTORY AND THE CANADIAN DSL OR NDSL. MSDS PREPARED BY THE CORPORATE  
COMPLIANCE DEPARTMENT.

THE INFORMATION AND RECOMMENDATIONS PROVIDED HEREIN ARE BELIEVED TO BE ACCURATE  
AS OF THE DATE HEREOF. HOWEVER, SUCH INFORMATION AND RECOMMENDATIONS ARE  
PROVIDED WITHOUT WARRANTY OF ANY KIND AND PREMIER FARNELL CORP. DISCLAIMS  
ANY AND ALL LIABILITY OR LEGAL RESPONSIBILITY FOR USE OR RELIANCE UPON SAME.

1000

506 REV. 05027400

[illegible]

SECTION V - HEALTH HAZARD DATA

ENTRY: EYE INHALATION  
OR OVEREXPOSURE.

EXPOSURE TO WELDING FUMES MAY RESULT IN DIZZINESS, NAUSEA, OR DRYNESS  
OF NOSE, THROAT & EYES. CHRONIC EXCESS WELDING FUMES ABOVE  
LV MAY BE HAZARDOUS. PROLONGED & REPEATED INHALATION MAY BE HARMFUL  
RESPIRATORY SYSTEM. SOME EXPOSURES OR COMPOUNDS OF MANGANESE ARE MUTA-  
GENIC & SUSPECTED POTENTIAL CARCINOGENS IN EXPERIMENTAL ANIMALS.

PEL: CARCINOGEN: + OR > 0.1% NO  
LV AND FIRST AID PROCEDURES.

IMMEDIATELY FLUSH WITH PLENTY OF WATER FOR 15 MIN & CALL PHYSICIAN  
WASH THOROUGHLY WITH PLENTY OF WATER & SOAP. INHALATION IF AFFECTED,  
GET FRESH AIR, ADMINISTER OXYGEN & CALL PHYSICIAN. INGESTION ACCI-  
DENTATION IS UNLIKELY IF INGESTED CALL A PHYSICIAN IMMEDIATELY.

SECTION VI - REACTIVITY DATA

EE CONDITIONS TO AVOID  
REACTIVITY (MATERIALS TO AVOID). NO  
OR DECOMPOSITION PRODUCTS.

WELDER FROM WELDING & HIGH TEMPERATURE CUTTING CANNOT BE CLASSIFIED  
THE COMPOSITION & QUANTITY OF BOTH DEPEND ON THE ALLOY BEING WELDED,  
ACCESS, PROCEDURES, & ELECTRODES USED. THE CONSTITUENTS OF THE FUME MAY  
VARY FROM THE INGREDIENTS LISTED IN SECTION 2, & MAY INCLUDE PARTICLES  
OF IRON, MANGANESE, SILICON, CHROMIUM, NICKEL, OR OTHER AMORPHOUS SLAUS.  
WELDER MAY INCLUDE CARBON MONOXIDE, OZONE, METAL OXIDES, OR METAL FLUORIDES.  
WELDING WORKING EXPOSURE LIMITS APPLY TO THOSE FUMES & GASES WHICH MAY BE  
IN WELDING OR HIGH TEMPERATURE CUTTING ENVIRONMENT

WELDER	REL	TLV	SUBSTANCE	REL	TLV
IRON FUME (AL)	5.0	5.0	MANGANESE FUME (MN)	1.0	1.0
IRON OXIDE (FE)	40.0	29.0	NICKEL (NI)	3.0	3.0
IRON (FED) (PPM)	0.1	0.05	NITROGEN DIOXIDE (NO2)	0.1	0.1
FUME	0.05	0.02	OZONE (O3)	0.2	0.2
FUME (O3)	0.1	0.2	WELDING FUMES (NO2)	5.0	5.0
IRON (AS %)	2.5	2.5			
IRON FUMES (AS %)	10.0	5.0			

WELDER POLYMERIZATION, NO

SECTION VII - SPILL OR LEAK PROCEDURES

WELDER: BARA TITLE 111: #002 NO #004, CERCLA, NO #012 YES  
WELDER: BARA TITLE 111: #002 NO #004, CERCLA, NO #012 YES  
WELDER: BARA TITLE 111: #002 NO #004, CERCLA, NO #012 YES  
WELDER: BARA TITLE 111: #002 NO #004, CERCLA, NO #012 YES

WELDER: BARA TITLE 111: #002 NO #004, CERCLA, NO #012 YES

WELDER: BARA TITLE 111: #002 NO #004, CERCLA, NO #012 YES

## SECTION VIII - SAFE HANDLING AND PROTECTION INFORMATION

WELDING: SPECIAL WELDER, ANSI Z49.1  
 MECHANICAL: OTHER: MHWIS CODE, D24  
 ACTIVE GLOVES, WELDERS PROTECTIVE GLOVES EYE PROTECTION (SEE BELOW)  
 PPE IN USE  
 PROTECTION: FACE SHIELD AND COLORED ABOORPTIVE LENS  
 WRT LEATHER APRON, SLEEVES, AND LEGGINGS.  
 TAYED LISC. PS/KG, NO  
 WATER LOAD, DPM, NO  
 VIBRATION, NO

SYNERGISTIC AGENTS: NO

## SECTION IX - SPECIAL PRECAUTIONS

CAUTIONS TO BE TAKEN IN HANDLING AND STORING  
 DANGER: A FLAME MAY BE A SOURCE OF IGNITION OF COMBUSTIBLE MATERIALS  
 IN WELL VENTILATED AREAS. DO NOT BREATHE DUSTS. IF VENTILATION IS  
 INSUFFICIENT, WEAR APPROVED RESPIRATORY EQUIPMENT. AVOID PROLONGED CONTACT  
 WITH SKIN. WASH THOROUGHLY AFTER USING. IN CASE OF ACCIDENT OR ILLNESS  
 CONSULT A PHYSICIAN IMMEDIATELY. SHOW LABEL OR MSDS  
 PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN. KEEP ONLY IN ORIGINAL LABELED CONTAINERS  
 READ AND FOLLOW DIRECTIONS ON PRODUCT LABEL. ADDITIONAL TECHNICAL  
 SHEETS AND/OR MATERIAL SAFETY DATA SHEETS (MSDS) ARE AVAILABLE UPON  
 REQUEST. FOR PROFESSIONAL AND INDUSTRIAL USE ONLY.

## X. ABBREVIATIONS AND NOTATIONS

ALL IN DATA TITLE (1) SECTION (10): H-HIGH-HAZARDOUS HORMONAL AGENTS THE  
 AT PRECIPITANT SUBSTANCES, H=CONTAINS ENCAPSULATED SILICA-CRYSTALLINE  
 THE PRODUCT USAGE SHOULD NOT RESULT IN RESPIRABLE DUST THAT WOULD BE  
 EXPOSED TO THE RESPIRATORY SYSTEM. N/A=NOT AVAILABLE OR APPLICABLE, N=IF  
 OR AT RISK. PNT DE TUNE: C=CELLING LIMIT, S=SKIN DESIGNATION, H=HUMAN  
 HAZARDOUS, G=GUINER FIVE, MIC=MIC, I=INJECTION, A=SKIN ABSORPTION  
 EFFECT OBSERVABLE EFFECT, NO=NO EFFECT, PEL=OSHA PERMISSIBLE EXPOSURE  
 LEVEL, TLV=THRESHOLD LIMIT VALUE, STEL=SHORT TERM EXPOSURE LIMIT.

NOTATION AND RECOMMENDATIONS PROVIDED HEREIN ARE BELIEVED TO BE ACCURATE  
 BASED ON THE DATA HEREON. HOWEVER, SUCH INFORMATION AND RECOMMENDATIONS ARE  
 GIVEN WITHOUT WARRANTY OF ANY KIND AND PREMIER INDUSTRIAL CORPORATION  
 ACCEPTS NO LIABILITY FOR ANY LOSS OR DAMAGE, INCLUDING REPUTATIONAL, ARISING FROM THE USE OR NON-USE OF THIS INFORMATION.