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[MSDS](#)

**Common Name:** NICKEL METAL HYDRIDE BATTERY, NI-MH BATTERY, SILICON DIOXIDE, P400 ABS

**Manufacturer:** SHENZHEN GREPOW BATTERY CHINA

**MSDS Revision Date:** 1/1/2009

**Grainger Item Number(s):** 5RHNO

**Manufacturer Model Number(s):**

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GREPOW

Ni-MH RECHARGEABLE

MSDS NO.: GREPOW 200901010025

MATERIAL SAFETY DATA SHEET

CREATION DATE: 1 JAN 2009

LAST UPDATE:

PRODUCT NAME: NICKEL METAL HYDRIDE BATTERY

THE BATTERIES REFERENCED HEREIN ARE EXEMPT ARTICLES AND ARE NOT SUBJECT TO THE OSHA HAZARD COMMUNICATION STANDARD REQUIREMENT. THIS SAFETY DATA SHEET IS PROVIDED AS A SERVICE TO OUR CUSTOMERS.

## 1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION

 top

AND THE COMPANY / UNDERTAKING

IDENTIFICATION OF THE SUBSTANCE/PREPARATION:

PRODUCT NAME: NICKEL METAL HYDRIDE BATTERY

USE OF THE SUBSTANCE/PREPARATION: BATTERY

COMPANY/UNDERTAKING IDENTIFICATION:

SUPPLIER:

SHENZHEN GREPOW BATTERY CO., LTD  
WUSHIGANG, CHUANGYI RD.  
LONGHUA VILLAGE, BAO AN DISTRICT  
SHENZHEN, P.R.  
CHINA

EMERGENCY TELEPHONE NUMBER: 086-0755-27043782



## 2. COMPOSITION / INFORMATION ON INGREDIENTS

THE NICKEL METAL HYDRIDE BATTERY IS HERMETICALLY SEALED; AMONG ITS COMPONENTS, THE FOLLOWING ONES COULD POTENTIALLY BE HAZARDOUS UPON RELEASE.

PRODUCT NAME: NICKEL METAL HYDRIDE BATTERY

HAZARDOUS COMPONENTS	CAS-NO.	EC-NO.	WEIGHT %	CLASSIFICATION
NICKEL HYDROXIDE	12054-48-7	235-008-5	15-30%	CARCINOGENIC CATEGORY 3 R40 SENSITIZING R43, Xn R20/22 N R50-53
METAL HYDRIDE ALLOY			15-40%	CARCINOGENIC CATEGORY 3 R40 SENSITIZING R42/43,
POTASSIUM HYDROXIDE	1310-58-3	215-181-3	3-15%	C R35, Xn R22
COBALT HYDROXIDE	21041-93-0	244-166-4	2.5-7%	Xn R22, SENSITIZING R42/43

FOR THE FULL TEXT OF THE R PHRASES MENTIONED IN THIS SECTION, SEE SECTION 15.

## 3. HAZARDS IDENTIFICATION



### CLASSIFICATION:

CARCINOGENIC CATEGORY 3 R40, SENSITIZING R42/43, Xn R20/22, C R35, N R50-53

### MOST IMPORTANT HAZARDS:

LIMITED EVIDENCE OF A CARCINOGENIC EFFECT. CAUSES SEVERE BURNS HARMFUL BY INHALATION AND IF SWALLOWED. MAY CAUSE SENSITIZATION BY INHALATION AND SKIN CONTACT. VERY TOXIC TO AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT.

### FURTHER INFORMATION:

THE NICKEL METAL HYDRIDE IS A SEALED BATTERY WHICH IS NOT HAZARDOUS WHEN USED ACCORDING TO RECOMMENDATIONS.

UNDER NORMAL CONDITIONS OF USE, THE INTEGRITY OF THE BATTERY CASING AND SECURITY VENT ARE MAINTAINED, THE INGREDIENTS ARE NOT EXPECTED TO POSE A SIGNIFICANT RISK TO MAN OR THE ENVIRONMENT.

ON SOME BAD USING CONDITIONS (HIGH OVER-CHARGE, INVERSE CHARGE, EXTERNAL SHORT CIRCUIT) AND IN CASE OF A BAD FUNCTIONING, SOME ELECTROLYTE LEAKAGE CAN OCCUR BY THE SAFETY VENT. IN THESE CASES, THE RISK IS THE CAUSTIC NATURE OF ELECTROLYTE (POTASSIUM HYDROXIDE).

THE CLASSIFICATION ABOVE IS BASED ON THE CONTENTS BEING CONSIDERED AS A PREPARATION IN ACCORDANCE WITH DIRECTIVE 1999/45/EC

## 4. FIRST AID MEASURES



GENERAL ADVICE: SHOW THIS SAFETY DATA SHEET TO THE DOCTOR IN ATTENDANCE.

THE INFORMATION BELOW REFERS TO EXPOSURE TO THE INGREDIENTS.

**INHALATION:**

IMMEDIATE MEDICAL ATTENTION IS REQUIRED. MOVE TO FRESH AIR. IF SYMPTOMS PERSIST, CALL A PHYSICIAN.

**SKIN CONTACT:**

IMMEDIATE MEDICAL ATTENTION IS REQUIRED. WASH OFF IMMEDIATELY WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. REMOVE AND WASH CONTAMINATED CLOTHING BEFORE RE-USE. IF SKIN IRRITATION PERSISTS, CALL A PHYSICIAN.

**EYE CONTACT:**

IMMEDIATE MEDICAL ATTENTION IS REQUIRED.

REMOVE CONTACT LENSES. RINSE IMMEDIATELY WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES.

**INGESTION:**

IMMEDIATE MEDICAL ATTENTION IS REQUIRED. GENTLY WIPE OR RINSE THE INSIDE OF THE MOUTH WITH WATER. GIVE SMALL AMOUNTS OF WATER TO DRINK. DO NOT INDUCE VOMITING. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. CALL A PHYSICIAN OR POISON CONTROL CENTRE IMMEDIATELY.

## **5. FIRE-FIGHTING MEASURES**

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SUITABLE EXTINGUISHING MEDIA: DRY POWDER, CARBON DIOXIDE (CO<sub>2</sub>), SAND.

EXTINGUISHING MEDIA WHICH MUST NOT BE USED FOR SAFETY REASONS:  
WATER, WATER SPRAY.

SPECIFIC HAZARDS: RISK OF RECEPTACLE BURSTING.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS:

IN THE EVENT OF FIRE, WEAR SELF CONTAINED BREATHING APPARATUS. WEAR PERSONAL PROTECTIVE EQUIPMENT.

HAZARDOUS DECOMPOSITION PRODUCTS: NICKEL AND COBALT COMPOUNDS.

## **6. ACCIDENTAL RELEASE MEASURES**

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THE INFORMATION BELOW REFERS TO EXPOSURE TO THE INGREDIENTS.

PERSONAL PRECAUTIONS:

USE PERSONAL PROTECTIVE EQUIPMENT.  
AVOID CONTACT WITH SKIN AND EYES.

ENVIRONMENTAL PRECAUTIONS:

PREVENT FURTHER LEAKAGE OR SPILLAGE IF SAFE TO DO SO.  
DO NOT ALLOW MATERIAL TO CONTAMINATE GROUND WATER SYSTEM.

METHODS FOR CLEANING UP:

PICK UP AND TRANSFER TO PROPERLY LABELED CONTAINERS.  
DISPOSE OF IN ACCORDANCE WITH LOCAL REGULATIONS.

## **7. HANDLING AND STORAGE**

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HANDLING:

**TECHNICAL MEASURES/PRECAUTIONS:**

NO SPECIAL TECHNICAL PROTECTIVE MEASURES REQUIRED.

DO NOT OBSTRUCT SAFETY VENT BY SOLDERING OR WELDING TABS ON THE POSITIVE TOP.

**SAFE HANDLING ADVICE:**

AVOID CONTACT WITH SKIN AND EYES.

USE PERSONAL PROTECTIVE EQUIPMENT.

**STORAGE:**

**TECHNICAL MEASURES/STORAGE CONDITIONS:**

KEEP IN A DRY, COOL AND WELL-VENTILATED PLACE, PREFERABLY IN THE TEMPERATURE RANGE OF +5 TO +25 DEG. C AT 65% (+-5%)

**RELATIVE HUMIDITY.**

KEEP AWAY FROM HEAT AND SOURCES OF IGNITION.

ENSURE BATTERY TERMINALS ARE PROTECTED DURING STORAGE.

## **8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

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**OCCUPATIONAL EXPOSURE CONTROLS:**

**ENGINEERING MEASURES:**

ENSURE ADEQUATE VENTILATION, ESPECIALLY IN CONFINED AREAS.

**PERSONAL PROTECTIVE EQUIPMENT:** NOT REQUIRED UNDER NORMAL USE.

THE INFORMATION BELOW REFERS TO EXPOSURE TO THE INGREDIENTS.

**RESPIRATORY PROTECTION:**

WEAR A POSITIVE-PRESSURE SUPPLIED-AIR RESPIRATOR WITH FULL FACEPIECE.

**HAND PROTECTION:** NEOPRENE GLOVES (EN374).

**EYE PROTECTION:** SAFETY GLASSES WITH SIDE-SHIELDS CONFORMING TO EN166.

**SKIN AND BODY PROTECTION:** BOOTS, APRON, PROTECTIVE SUIT.

**HYGIENE MEASURES:** GENERAL INDUSTRIAL HYGIENE PRACTICE.

**ENVIRONMENTAL EXPOSURE CONTROLS:**

THE INFORMATION BELOW REFERS TO EXPOSURE TO THE INGREDIENTS:

PREVENT PRODUCT FROM ENTERING DRAINS.

DO NOT ALLOW MATERIAL TO CONTAMINATE GROUND WATER SYSTEM.

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

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**GENERAL INFORMATION:**

**FORM:** BATTERY (SEALED UNIT)

**COLOR:** NOT APPLICABLE

**ODOR:** ODORLESS

**IMPORTANT HEALTH SAFETY AND ENVIRONMENTAL INFORMATION:** NOT APPLICABLE



## 10. STABILITY AND REACTIVITY

STABILITY: STABLE UNDER NORMAL CONDITIONS.

HAZARDOUS POLYMERIZATION: HAZARDOUS POLYMERIZATION DOES NOT OCCUR.

CONDITIONS TO AVOID: KEEP AWAY FROM HEAT AND SOURCES OF IGNITION.

MATERIALS TO AVOID: EXPOSURE TO MOISTURE.

HAZARDOUS DECOMPOSITION PRODUCTS: NICKEL AND COBALT COMPOUNDS.



## 11. TOXICOLOGICAL INFORMATION

THE INFORMATION BELOW REFERS TO EXPOSURE TO THE INGREDIENTS:

LOCAL EFFECTS:

CAUSES SEVERE BURNS. RISK OF SERIOUS DAMAGE TO EYES. HARMFUL BY INHALATION AND IF SWALLOWED.

LONG TERM TOXICITY: NO DATA AVAILABLE. AVOID REPEATED EXPOSURE.

SPECIFIC EFFECTS:

MAY CAUSE SENSITIZATION BY INHALATION AND SKIN CONTACT.

LIMITED EVIDENCE OF A CARCINOGENIC EFFECT.



## 12. ECOLOGICAL INFORMATION

IF USED AS DIRECTED, AND IF THE INTEGRITY OF THE BATTERY CASING AND SECURITY VENT ARE MAINTAINED, THE INGREDIENTS ARE NOT EXPECTED TO POSE A SIGNIFICANT RISK TO THE ENVIRONMENT.

MOBILITY: NO DATA AVAILABLE.

PERSISTENCE AND DEGRADABILITY: NO DATA AVAILABLE.

ECOTOXICITY EFFECTS:

THE INFORMATION BELOW REFERS TO EXPOSURE TO THE INGREDIENTS:

NICKEL HYDROXIDE:

VERY TOXIC TO AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT.



## 13. DISPOSAL CONSIDERATIONS

WASTE FROM RESIDUES / UNUSED PRODUCTS:

DISPOSE OF IN ACCORDANCE WITH LOCAL REGULATIONS. IT MUST UNDERGO SPECIAL TREATMENT, E.G. AT SUITABLE DISPOSAL SITE, TO COMPLY WITH LOCAL REGULATIONS. SHOULD NOT BE RELEASED INTO THE ENVIRONMENT.

CONTAMINATED PACKAGING: NOT APPLICABLE.

FURTHER INFORMATION:

EWC WASTE DISPOSAL NO:

200133 - BATTERIES AND ACCUMULATORS INCLUDED IN 16 06 01, 16 06 02 OR 16 06

03 AND UNSORTED BATTERIES AND ACCUMULATORS CONTAINING THESE BATTERIES  
NEVER INCINERATE Ni-MH BATTERIES.  
NEVER DISPOSE Ni-MH BATTERIES AS LANDFILL.

NICKEL-METAL HYDRIDE BATTERIES - WHICH IN SOME COUNTRIES MAY NOT BE SUBJECT TO COLLECTION & RECYCLING AND/OR DISPOSAL REQUIREMENTS - DO HOWEVER CONTAIN RECYCLABLE MATERIALS AND GREPOW RECOMMENDS PROPER RECYCLING OF THESE BATTERIES WHENEVER POSSIBLE.

## 14. TRANSPORT INFORMATION



THE GREPOW RECHARGEABLE Ni-MH BATTERIES ARE CONSIDERED TO BE "DRY CELL" BATTERIES AND ARE NOT SUBJECT TO DANGEROUS GOODS REGULATION FOR THE PURPOSE OF TRANSPORTATION BY THE U.S. DEPARTMENT OF TRANSPORTATION (DOT), THE INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO), THE INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA) OR THE INTERNATIONAL MARITIME DANGEROUS GOODS REGULATIONS (IMDG).

THE ONLY DOT REQUIREMENT FOR SHIPPING NICKEL METAL HYDRIDE BATTERIES IS SPECIAL PROVISION 130 WHICH STATES:

"BATTERIES, DRY ARE NOT SUBJECT TO THE REQUIREMENTS OF THIS SUBCHAPTER ONLY WHEN THEY ARE OFFERED FOR TRANSPORTATION IN A MANNER THAT PREVENTS THE DANGEROUS EVOLUTION OF HEAT (FOR EXAMPLE, BY THE EFFECTIVE INSULATION OF EXPOSED TERMINALS)." IATA REQUIRES THAT BATTERIES BEING TRANSPORTED BY AIR MUST BE PROTECTED FROM SHORT-CIRCUITING AND PROTECTED FROM MOVEMENT THAT COULD LEAD TO SHORT-CIRCUITING. THE INTERNATIONAL MARITIME DANGEROUS GOODS CODE (IMDG) REGULATE THEM FOR OCEAN TRANSPORTATION UNDER SPECIAL PROVISION 304 WHICH SAYS "BATTERIES, DRY, CONTAINING CORROSIVE ELECTROLYTE WHICH WILL NOT FLOW OUT OF THE BATTERY IF THE BATTERY CASE IS CRACKED ARE NOT SUBJECT TO THE PROVISIONS OF THIS CODE PROVIDED THE BATTERIES ARE SECURELY PACKED AND PROTECTED AGAINST SHORT-CIRCUITS.

EXAMPLES OF SUCH BATTERIES ARE:

ALKALI-MANGANESE, ZINC CARBON, NICKEL METAL HYDRIDE AND NICKEL-CADMIUUM BATTERIES."

WE HEREBY CERTIFY THAT THE CONSIGNMENT IS NOT CLASSIFIED AS DANGEROUS GOODS UNDER THE CURRENT EDITION OF THE IATA DANGEROUS GOODS REGULATIONS A123 UNDER 50TH EDITION AND ALL APPLICABLE CAMER AND GOVERNMENTAL REGULATIONS".

## 15. REGULATORY INFORMATION



SYMBOL:

C - CORROSIVE

N - DANGEROUS FOR THE ENVIRONMENT

TEXT OF R PHRASES: MENTIONED IN SECTION 2

R22: HARMFUL IF SWALLOWED.

R20/22: HARMFUL BY INHALATION AND IF SWALLOWED.

R35: CAUSES SEVERE BURNS

R40: LIMITED EVIDENCE OF A CARCINOGENIC EFFECT.

R42/43: MAY CAUSE SENSITIZATION BY INHALATION AND SKIN CONTACT.

R43: MAY CAUSE SENSITIZATION BY SKIN CONTACT.

R50/53:

VERY TOXIC TO AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT.

## 16. OTHER INFORMATION

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S-PHRASES:

S 1/2: KEEP LOCKED UP AND OUT OF THE REACH OF CHILDREN.

S36/37/39:

WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND EYE/FACE PROTECTION.

S45:

IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).

S60:

THIS MATERIAL AND ITS CONTAINER MUST BE DISPOSED OF AS HAZARDOUS WASTE.

S61:

AVOID RELEASE TO THE ENVIRONMENT. REFER TO SPECIAL INSTRUCTIONS/SAFETY DATA SHEETS.

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.

MATERIAL SAFETY DATA SHEET

REPORT NO.: 1004013-233

DATE: 04.08.2010

## SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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PRODUCT NAME: Ni-MH BATTERY

MANUFACTURER: SHENZHEN LTT ELECTRONIC CO., LTD.

ADDRESS:

NO.8-1, TONGFUYU INDUSTRIAL ZONE, KUKENG  
GUANLAN TOWN  
BAO'AN DISTRICT, SHENZHEN  
GUANGDONG PROVINCE  
CHINA

POST CODE: 518110

TEL: 0755-33693588

EMERGENCY TELEPHONE: 0755-33693588

FAX: 0755-33693776

**SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENT**

CHEMICAL NAME	MOLECULAR FORMULA	CAS NO.	WEIGHT(%)
NICKEL HYDROXIDE	Ni(OH)2	12054-48-7	29
COBALTOUS OXIDE	CoO	1307-96-6	2
METAL HYDRIDE			33
COPPER	Cu	7440-50-8	6
HIGH CARBON STEEL	Fe	7439-89-6	19
NICKEL	Ni	7440-02-0	7
ZINC	Zn	7440-66-6	1.7
MANGANESE	Mn	7439-96-5	2.3

**SECTION 3 - HAZARDS IDENTIFICATION**

NO SPECIFIC HEALTH HAZARDS FOR NORMAL USE.

ROUTES OF ENTRY: EYES, SKIN, INHALATION, INGESTION.

HEALTH HAZARDS:

THESE CHEMICALS ARE CONTAINED IN A SEALED CAN. RISK OF EXPOSURE OCCURS ONLY IF THE BATTERY IS MECHANICALLY OR ELECTRICALLY ABUSED. THE MOST LIKELY RISK IS ACUTE EXPOSURE WHEN A BATTERY VENTS. LEAKING MATERIAL EXPOSURE TO SKIN, EYES MAY CAUSE IRRITATION. INHALATION OF FUMES MY CAUSE RESPIRATORY IRRITATION.

SIGN/SYMPTOMS OF EXPOSURE:

MAY BE A REPRODUCTIVE HAZARD. LEAKING CAN CAUSE THERMAL AND CHEMICAL BURNS UPON CONTACT WITH THE SKIN.

**SECTION 4 - FIRST AID MEASURES**

EYE:

FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. GET MEDICAL AID.

SKIN:

REMOVE CONTAMINATED CLOTHES AND RINSE SKIN WITH PLENTY OF WATER OR SHOWER FOR 15 MINUTES. GET MEDICAL AID.

INHALATION:

REMOVE FROM EXPOSURE AND MOVE TO FRESH AIR IMMEDIATELY. USE OXYGEN IF AVAILABLE.

INGESTION: DO NOT INDUCE VOMITING. CALL A PHYSICIAN IMMEDIATELY.

**SECTION 5 - FIRE FIGHTING MEASURES**

FLASH POINT: N/A.

AUTO-IGNITION TEMPERATURE: N/A.

EXTINGUISHING MEDIA: CO<sub>2</sub>, DRY CHEMICAL.

**FIREFIGHTING:**

IN CASE OF FIRE IN AN ADJACENT AREA, USE CO<sub>2</sub> OR DRY CHEMICAL EXTINGUISHERS IF BATTERIES IN THEIR ORIGINAL CONTAINERS SINCE THE FUEL OF THE FIRE IS BASICALLY PAPER PRODUCTS. FOR BULK QUANTITIES OF UNPACKAGED BATTERIES USE SUITABLE EXTINGUISHERS. IN THIS CASE, DO NOT USE WATER.

## **SECTION 6 - ACCIDENTAL RELEASE MEASURES**

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

IF THE BATTERY MATERIAL IS RELEASED, REMOVE PERSONNEL FROM AREA UNTIL FUMES DISSIPATE. PROVIDE MAXIMUM VENTILATION TO CLEAR OUT HAZARDOUS GASES. WIPE IT UP WITH A CLOTH, AND DISPOSE OF IT IN A PLASTIC BAG AND PUT INTO A STEEL CAN. THE PREFERRED RESPONSE IS TO LEAVE THE AREA AND ALLOW THE BATTERY TO COOL AND VAPORS TO DISSIPATE. PROVIDE MAXIMUM VENTILATION. AVOID SKIN AND EYE CONTACT OR INHALATION OF VAPORS. REMOVE SPILLED LIQUID WITH ABSORBENT AND INCINERATE.

**WASTE DISPOSAL METHOD:**

IT IS RECOMMENDED TO DISCHARGE THE BATTERY TO THE END, HANDING IN THE ABANDONED BATTERIES TO RELATED DEPARTMENT UNIFIED, DISPOSE OF THE BATTERIES IN ACCORDANCE WITH APPROVED LOCAL, STATE, AND FEDERAL REQUIREMENTS. CONSULT STATE ENVIRONMENTAL PROTECTION AGENCY AND/OR FEDERAL EPA.

## **SECTION 7 - HANDLING AND STORAGE**

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THE BATTERIES SHOULD NOT BE OPENED, DESTROYED OR INCINERATE, SINCE THEY MAY LEAK OR RUPTURE AND RELEASE TO THE ENVIRONMENT THE INGREDIENTS THAT THEY CONTAIN IN THE HERMETICALLY SEALED CONTAINER.

DO NOT SHORT CIRCUIT TERMINALS, OR CHARGE THE BATTERY, FORCED OVER-DISCHARGE, THROW TO FIRE. DO NOT CRUSH OR PUNCTURE THE BATTERY, OR IMMERSE IN LIQUIDS.

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:**

AVOID MECHANICAL OR ELECTRICAL ABUSE. STORAGE PREFERABLY IN COOL, DRY AND VENTILATED AREA, WHICH IS SUBJECT TO LITTLE TEMPERATURE CHANGE. STORAGE AT HIGH TEMPERATURES SHOULD BE AVOIDED.

DO NOT PLACE THE BATTERY NEAR HEATING EQUIPMENT, NOR EXPOSE TO DIRECT SUNLIGHT FOR LONG PERIODS.

OTHER PRECAUTIONS: DO NOT SHORT OR INSTALL WITH INCORRECT POLARITY.

## **SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION**

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**RESPIRATORY PROTECTION:**

IN CASE OF BATTERY VENTING, PROVIDE AS MUCH VENTILATION AS POSSIBLE. AVOID CONFINED AREAS WITH VENTING BATTERIES. RESPIRATORY PROTECTION IS NOT NECESSARY UNDER CONDITIONS OF NORMAL USE.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT:  
NOT NECESSARY UNDER CONDITIONS OF NORMAL USE.

PERSONAL PROTECTION IS RECOMMENDED FOR VENTING BATTERIES:  
RESPIRATORY PROTECTION, PROTECTIVE GLOVES, PROTECTIVE CLOTHING AND SAFETY  
GLASS WITH SIDE SHIELDS.

## SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

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NOMINAL VOLTAGE: 1.2V

APPEARANCE CHARACTERS: GREEN, WITH ODORLESS CYLINDRICAL BATTERY.

## SECTION 10 - STABILITY AND REACTIVITY

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STABILITY: STABLE FOR NORMAL.

CONDITIONS TO AVOID: HEATING, FIRE, MECHANICAL ABUSE AND ELECTRICAL ABUSE.

HAZARDOUS DECOMPOSITION PRODUCTS:

WHEN EXPOSED TO FIRE OR EXTREME HEAT, BATTERIES MAY EMIT TOXIC FUMES.

## SECTION 11 - TOXICOLOGICAL INFORMATION

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INHALATION, SKIN CONTACT AND EYE CONTACT ARE POSSIBLE WHEN THE BATTERY IS OPENED. EXPOSURE TO INTERNAL CONTENTS, THE CORROSIVE FUMES WILL BE IRRITATION TO SKIN, EYES AND MUCOUS MEMBRANES. OVEREXPOSURE CAN CAUSE SYMPTOMS OF NON-FIBROTIC LUNG INJURY AND MEMBRANE IRRITATION.

## SECTION 12 - ECOLOGICAL INFORMATION

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WHEN PROMPTLY USED OR DISPOSED THE BATTERY DOES NOT PRESENT ENVIRONMENTAL HAZARD. WHEN DISPOSED, KEEP AWAY FROM WATER, RAIN AND SNOW.

## SECTION 13 - DISPOSAL CONSIDERATIONS

 top

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION:  
DISPOSE OF THE BATTERIES IN ACCORDANCE WITH APPROVED LOCAL, STATE, AND FEDERAL REQUIREMENTS. CONSULT STATE ENVIRONMENTAL AGENCY.

## SECTION 14 - TRANSPORT INFORMATION

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NOT A HAZARD MATERIAL OR HAZARD GOODS FOR TRANSPORTATION.

SEPARATE NICKEL METAL HYDRIDE BATTERIES WHEN SHIPPING TO PREVENT SHORT-CIRCUITING. THEY SHOULD BE PACKED IN STRONG PACKAGING FOR SUPPORT DURING TRANSPORT. TAKE IN A CARGO OF THEM WITHOUT FALLING, DROPPING, AND BREAKAGE. PREVENT COLLAPSE OF CARGO PILES AND WET BY RAIN. THE CONTAINER MUST BE HANDLED CAREFULLY. DO NOT GIVE SHOCKS THAT RESULT IN A MARK OR HITTING ON A CELL. PLEASE REFER TO SECTION 7-HANDLING AND STORAGE ALSO.

TRANSPORT FASHION: BY AIR, BY SEA, BY RAILWAY, BY HIGHWAY.

PACKAGING INFORMATION: CARTON.

## SECTION 15 - REGULATORY INFORMATION

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### LAW INFORMATION:

DANGEROUS GOODS REGULATION

RECOMMENDATIONS ON THE TRANSPORT OF DANGEROUS GOODS MODEL REGULATIONS

INTERNATIONAL MARITIME DANGEROUS GOODS

TECHNICAL INSTRUCTIONS FOR THE SAFE TRANSPORT OF DANGEROUS GOODS

CLASSIFICATION AND CODE OF DANGEROUS GOODS

OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)

TOXIC SUBSTANCES CONTROL ACT (TSCA)

CONSUMER PRODUCT SAFETY ACT (CPSA)

FEDERAL ENVIRONMENTAL POLLUTION CONTROL ACT (FEPICA)

THE OIL POLLUTION ACT (OPA)

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT TITLE III (302/311/312/313) (SARA)

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

SAFETY DRINKING WATER ACT (CWA)

CALIFORNIA PROPOSITION 65

CODE OF FEDERAL REGULATIONS (CFR)

IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL LAWS.

## SECTION 16 - ADDITIONAL INFORMATION

 top

THE ABOVE INFORMATION IS BASED ON THE DATA OF WHICH WE ARE AWARE AND IS BELIEVED TO BE CORRECT AS OF THE DATA HEREOF. SINCE THIS INFORMATION MAY BE APPLIED UNDER CONDITIONS BEYOND OUR CONTROL AND WITH WHICH MAY BE UNFAMILIAR AND SINCE DATA MADE AVAILABLE SUBSEQUENT TO THE DATA HEREOF MAY SUGGEST MODIFICATIONS OF THE INFORMATION, WE DO NOT ASSUME ANY RESPONSIBILITY FOR THE RESULTS OF ITS USE. THIS INFORMATION IS FURNISHED UPON CONDITION THAT THE PERSON RECEIVING IT SHALL MAKE HIS OWN DETERMINATION OF THE SUITABILITY OF THE MATERIAL FOR HIS PARTICULAR PURPOSE.

MSDS CREATION DATE: APRIL 08, 2010

SILICON DIOXIDE - MSDS

### 1.

 top

PRODUCT NAME: SILICON DIOXIDE

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

 top

### SYNONYMS:

SILICA

QUARTZ

SAND

CRISTOBALITE

FORMULA: O<sub>2</sub>Si

MOLECULAR WEIGHT: 60.08 G/MOL

CAS-NO.: 60676-86-0

EC-NO.: 262-373-8

INDEX-NO.:

CONCENTRATION:

### 3. HAZARDS IDENTIFICATION

 top

EMERGENCY OVERVIEW:

OSHA HAZARDS: TARGET ORGAN EFFECT, IRRITANT

TARGET ORGANS: LUNGS

HMIS CLASSIFICATION:

HEALTH HAZARD	2
CHRONIC HEALTH HAZARD	*
FLAMMABILITY	0
PHYSICAL HAZARDS	0

NFPA RATING:

HEALTH HAZARD	2
FIRE	0
REACTIVITY HAZARD	0

POTENTIAL HEALTH EFFECTS:

INHALATION: MAY BE HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION.

SKIN: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CAUSES SKIN IRRITATION.

EYES: CAUSES EYE IRRITATION.

INGESTION: MAY BE HARMFUL IF SWALLOWED.

### 4. FIRST AID MEASURES

 top

GENERAL ADVICE:

CONSULT A PHYSICIAN. SHOW THIS SAFETY DATA SHEET TO THE DOCTOR IN ATTENDANCE. MOVE OUT OF DANGEROUS AREA.

IF INHALED:

IF BREATHED IN, MOVE PERSON INTO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION CONSULT A PHYSICIAN.

IN CASE OF SKIN CONTACT:

WASH OFF WITH SOAP AND PLENTY OF WATER. CONSULT A PHYSICIAN.

IN CASE OF EYE CONTACT:

RINSE THOROUGHLY WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND CONSULT A PHYSICIAN.

IF SWALLOWED:

NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. RINSE MOUTH WITH WATER. CONSULT A PHYSICIAN.

### 5. FIRE-FIGHTING MEASURES

 top

FLAMMABLE PROPERTIES:

FLASH POINT: NOT APPLICABLE

IGNITION TEMPERATURE: NO DATA AVAILABLE

SUITABLE EXTINGUISHING MEDIA:

USE WATER SPRAY, ALCOHOL-RESISTANT FOAM, DRY CHEMICAL OR CARBON DIOXIDE.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS:

WEAR SELF CONTAINED BREATHING APPARATUS FOR FIRE FIGHTING IF NECESSARY.

## 6. ACCIDENTAL RELEASE MEASURES

 top

PERSONAL PRECAUTIONS:

USE PERSONAL PROTECTIVE EQUIPMENT. AVOID DUST FORMATION. AVOID BREATHING DUST. ENSURE ADEQUATE VENTILATION.

ENVIRONMENTAL PRECAUTIONS: DO NOT LET PRODUCT ENTER DRAINS.

METHODS FOR CLEANING UP:

PICK UP AND ARRANGE DISPOSAL WITHOUT CREATING DUST. KEEP IN SUITABLE, CLOSED CONTAINERS FOR DISPOSAL.

## 7. HANDLING AND STORAGE

 top

HANDLING:

AVOID CONTACT WITH SKIN AND EYES. AVOID FORMATION OF DUST AND AEROSOLS.

PROVIDE APPROPRIATE EXHAUST VENTILATION AT PLACES WHERE DUST IS FORMED. NORMAL MEASURES FOR PREVENTIVE FIRE PROTECTION.

STORAGE: KEEP CONTAINER TIGHTLY CLOSED IN A DRY AND WELL-VENTILATED PLACE.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

 top

COMPONENTS WITH WORKPLACE CONTROL PARAMETERS:

COMPONENTS: SILICA, VITREOUS

CAS-NO.: 60676-86-0

VALUE: TWA

CONTROL PARAMETERS: 0.1 MG/M<sup>3</sup>

UPDATE: 1989-03-01

BASIS:

US. DEPARTMENT OF LABOR - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION  
(OSHA) 29 CFR 1910.1000 Z-1-A

PERSONAL PROTECTIVE EQUIPMENT:

RESPIRATORY PROTECTION:

WHERE RISK ASSESSMENT SHOWS AIR-PURIFYING RESPIRATORS ARE APPROPRIATE USE A DUST MASK TYPE N95 (US) OR TYPE P1 (EN 143) RESPIRATOR. USE RESPIRATORS AND COMPONENTS TESTED AND APPROVED UNDER APPROPRIATE GOVERNMENT STANDARDS SUCH AS NIOSH (US) OR CEN (EU).

HAND PROTECTION: HANDLE WITH GLOVES.

EYE PROTECTION: SAFETY GLASSES

SKIN AND BODY PROTECTION:

CHOOSE BODY PROTECTION ACCORDING TO THE AMOUNT AND CONCENTRATION OF THE DANGEROUS SUBSTANCE AT THE WORK PLACE.

HYGIENE MEASURES:

HANDLE IN ACCORDANCE WITH GOOD INDUSTRIAL HYGIENE AND SAFETY PRACTICE.  
WASH HANDS BEFORE BREAKS AND AT THE END OF WORKDAY.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

 top

APPEARANCE:

FORM: SOLID

SAFETY DATA:

pH: NO DATA AVAILABLE

MELTING POINT: 1,610 DEG. C (2,930 DEG. F)

BOILING POINT: NO DATA AVAILABLE

FLASH POINT: NO DATA AVAILABLE

IGNITION TEMPERATURE: NO DATA AVAILABLE

LOWER EXPLOSION LIMIT: NO DATA AVAILABLE

UPPER EXPLOSION LIMIT: NO DATA AVAILABLE

DENSITY: 2.6 G/ML AT 25 DEG. C (77 DEG. F)

WATER SOLUBILITY: NO DATA AVAILABLE

## 10. STABILITY AND REACTIVITY

 top

STORAGE STABILITY: STABLE UNDER RECOMMENDED STORAGE CONDITIONS.

## 11. TOXICOLOGICAL INFORMATION

 top

ACUTE TOXICITY: NO DATA AVAILABLE

IRRITATION AND CORROSION: NO DATA AVAILABLE

SENSITISATION: NO DATA AVAILABLE

CHRONIC EXPOSURE:

CARCINOGENICITY - RAT - IMPLANT:

TUMORIGENIC: EQUIVOCAL TUMORIGENIC AGENT BY RTECS CRITERIA.

GASTROINTESTINAL: TUMORS.

TUMORIGENIC: TUMORS AT SITE OR APPLICATION.

IARC:

GROUP 3:

NOT CLASSIFIABLE AS TO CARCINOGENICITY TO HUMANS (SILICA, VITREOUS)

**ACGIH:**

NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS A CARCINOGEN OR POTENTIAL CARCINOGEN BY ACGIH.

**NTP:**

NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS A KNOWN OR ANTICIPATED CARCINOGEN BY NTP.

**OSHA:**

NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS IDENTIFIED AS A CARCINOGEN OR POTENTIAL CARCINOGEN BY OSHA.

**SIGNS AND SYMPTOMS OF EXPOSURE:**

TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.

**POTENTIAL HEALTH EFFECTS:**

INHALATION: MAY BE HARMFUL IF INHALED. CAUSES RESPIRATORY TRACT IRRITATION.

SKIN: MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CAUSES SKIN IRRITATION.

EYES: CAUSES EYE IRRITATION.

INGESTION: MAY BE HARMFUL IF SWALLOWED.

TARGET ORGANS: LUNGS

**ADDITIONAL INFORMATION:**

RTECS: VV7328000

## **12. ECOLOGICAL INFORMATION**

 top

ELIMINATION INFORMATION (PERSISTENCE AND DEGRADABILITY): NO DATA AVAILABLE

ECOTOXICITY EFFECTS: NO DATA AVAILABLE

FURTHER INFORMATION ON ECOLOGY: NO DATA AVAILABLE

## **13. DISPOSAL CONSIDERATIONS**

 top

**PRODUCT:**

OBSERVE ALL FEDERAL, STATE, AND LOCAL ENVIRONMENTAL REGULATIONS. CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL.

CONTAMINATED PACKAGING: DISPOSE OF AS UNUSED PRODUCT.

## **14. TRANSPORT INFORMATION**

 top

DOT (US): NOT DANGEROUS GOODS

IMDG: NOT DANGEROUS GOODS

IATA: NOT DANGEROUS GOODS

## **15. REGULATORY INFORMATION**

 top

OSHA HAZARDS: TARGET ORGAN EFFECT, IRRITANT

DSL STATUS: ALL COMPONENTS OF THIS PRODUCT ARE ON THE CANADIAN DSL LIST.

SARA 302 COMPONENTS:

SARA 302:

NO CHEMICALS IN THIS MATERIAL ARE SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III, SECTION 302.

SARA 313 COMPONENTS:

SARA 313:

THIS MATERIAL DOES NOT CONTAIN ANY CHEMICAL COMPONENTS WITH KNOWN CAS NUMBERS THAT EXCEED THE THRESHOLD (DE MINIMIS) REPORTING LEVELS ESTABLISHED BY SARA TITLE III, SECTION 313.

SARA 311/312 HAZARDS:

ACUTE HEALTH HAZARD, CHRONIC HEALTH HAZARD  
MASSACHUSETTS RIGHT TO KNOW COMPONENTS

THIS PRODUCT DOES NOT CONTAIN ANY CHEMICALS KNOWN TO STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH, OR ANY OTHER REPRODUCTIVE DEFECTS.

## 16. OTHER INFORMATION

 top

FURTHER INFORMATION:

COPYRIGHT SOGA ENTERPRISES ASIA GROUP LIMITED LICENSE GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY. THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT BUT DOES NOT PURPORT TO BE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. THE INFORMATION IN THIS DOCUMENT IS BASED ON THE PRESENT STATE OF OUR KNOWLEDGE AND IS APPLICABLE TO THE PRODUCT WITH REGARD TO APPROPRIATE SAFETY PRECAUTIONS. IT DOES NOT REPRESENT ANY GUARANTEE OF THE PROPERTIES OF THE PRODUCT. SOGA ENTERPRISES ASIA GROUP LIMITED SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM HANDLING OR FROM CONTACT WITH THE ABOVE PRODUCT. SEE REVERSE SIDE OF INVOICE OR PACKING SLIP FOR ADDITIONAL TERMS AND CONDITIONS OF SALE.

STRATASYS(R\*)

P400 ABS

MATERIAL SAFETY DATA SHEET

9/14/04

## 1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

 top

PRODUCT NAME: P400 ABS

CHEMICAL FAMILY: STYRENE TERPOLYMER

GENERAL USE: FILAMENT FOR STRATASYS(R\*) INC. FDM(TM) MODELER

MANUFACTURER AND ADDRESS:

STRATASYS INC.  
14950 MARTIN DRIVE  
MINNEAPOLIS, MN 55344-2020  
USA

EMERGENCY TELEPHONE NUMBER: +1 952-937-3000

## 2. COMPOSITION, INGREDIENT INFORMATION



COMPONENT	CAS #	%	OSHA/PEL	ACGIH/TLV
ACRYLONITRILE/BUTADIENE/STYRENE RESIN	009003-56-9	90-100	N/E	N/E

MAY CONTAIN THE FOLLOWING:

MINERAL OIL	008042-47-5	0-2	N/E	N/E
TALLOW	067701-27-3	0-2	N/E	N/E
WAX	000110-30-5	0-2	N/E	N/E

N/E = NOT ESTABLISHED. P400 (ABS) IS NOT CONSIDERED HAZARDOUS UNDER THE CRITERIA OF THE FEDERAL OSHA HAZARD COMMUNICATION STANDARD 29 CFR SUBSECTION 1910.1200

## 3. HAZARDS IDENTIFICATION



### EMERGENCY OVERVIEW:

NO SIGNIFICANT IMMEDIATE HAZARDS FOR EMERGENCY RESPONSE ARE KNOWN

### HMIS RATINGS:

HEALTH	0
FLAMMABILITY	1
REACTIVITY	0

### INHALATION:

DUST OR VAPORS MAY BE IRRITATING TO THE RESPIRATORY TRACT AND CAUSE COUGHING OR SNEEZING

### EYE CONTACT:

DUST OR VAPORS THAT CONTACT THE EYE MAY BE IRRITATING OR CAUSE CORNEAL INJURY DUE TO MECHANICAL ACTION

SKIN CONTACT: MOLTEN MATERIAL WILL PRODUCE THERMAL BURNS

### INGESTION:

VERY LOW TOXICITY IF SWALLOWED. HARMFUL EFFECTS NOT ANTICIPATED FROM SWALLOWING SMALL AMOUNTS.

CHRONIC: NO RELEVANT INFORMATION FOUND

CARCINOGENICITY: NO RELEVANT INFORMATION FOUND

THRESHOLD LIMIT VALUE: NO ESTABLISHED VALUE. PRODUCT IS INERT.

## 4. EMERGENCY AND FIRST AID MEASURES



INHALATION: MOVE PERSON TO FRESH AIR IF EFFECTS OCCUR. CONSULT A PHYSICIAN.

### SKIN CONTACT:

IF MOLTEN MATERIAL COMES IN CONTACT WITH SKIN, DO NOT APPLY ICE. COOL SKIN UNDER ICE WATER OR RUNNING WATER. DO NOT ATTEMPT TO REMOVE THE MATERIAL FROM SKIN. REMOVAL COULD RESULT IN SEVERE TISSUE DAMAGE.

SKIN ABSORPTION: SKIN ABSORPTION IS UNLIKELY DUE TO PHYSICAL PROPERTIES

**EYE CONTACT:**

FLUSH EYES WITH PLENTY OF WATER. REMOVE CONTACT LENSES AFTER THE FIRST 1-2 MINUTES THEN CONTINUE FLUSHING FOR SEVERAL MINUTES. ONLY MECHANICAL EFFECTS EXPECTED.

INGESTION: NO EMERGENCY MEDICAL TREATMENT NECESSARY

## 5. FIRE-FIGHTING MEASURES & EXPLOSION HAZARD DATA

 top

FLASH POINT: NONE

METHOD USED: NOT APPLICABLE

FLAMMABILITY LIMITS:

LFL, UFL: NOT APPLICABLE

AUTOIGNITION TEMPERATURE: NOT APPLICABLE

EXTINGUISHING MEDIA:

WATER, FOG, FOAM, ALCOHOL RESISTANT FOAM, CO<sub>2</sub>, DRY CHEMICAL

SPECIAL FIRE-FIGHTING PROCEDURES:

WEAR A POSITIVE PRESSURE SELF-CONTAINED BREATHING APPARATUS (SCBA) AND FIRE FIGHTING CLOTHING AND HELMET

UNUSUAL FIRE AND EXPLOSION HAZARDS:

DENSE SMOKE EMITTED WHEN BURNED WITHOUT SUFFICIENT OXYGEN

HAZARDOUS DECOMPOSITION PRODUCTS:

DURING A FIRE, SMOKE MAY CONTAIN THE ORIGINAL MATERIAL IN ADDITION TO COMBUSTION PRODUCTS OF VARYING COMPOSITION PRODUCTS, WHICH MAY BE TOXIC AND/OR IRRITATING. COMBUSTION PRODUCTS MAY INCLUDE AND ARE NOT LIMITED TO CARBON MONOXIDE, CARBON DIOXIDE, AND NITROGEN OXIDES. COMBUSTION PRODUCTS MAY INCLUDE TRACE AMOUNTS OF STYRENE AND HYDROGEN CYANIDE.

FIRE FIGHTING INSTRUCTIONS:

KEEP PEOPLE AWAY FROM FIRE. ISOLATE FIRE AREA AND DENY UNNECESSARY ENTRY. IF MATERIAL IS MOLTEN, DO NOT APPLY DIRECT WATER STREAM. USE FINE WATER, SPRAY, OR FOAM. SOAK THOROUGHLY WITH WATER TO COOL AND PREVENT RE-IGNITION. COOL SURROUNDINGS WITH WATER TO LOCALIZE FIRE ZONE. HAND HELD DRY CHEMICAL OR CARBON DIOXIDE EXTINGUISHERS MAY BE USED FOR SMALL FIRES.

## 6. ACCIDENTAL RELEASE MEASURES

 top

GENERAL:

PROTECT PEOPLE AND THE ENVIRONMENT BY KEEPING FILAMENT IN APPROPRIATE LOCATIONS

SPECIFIC:

SWEEP "INERT" FILAMENT AND DISPOSE OF PROPERLY. AVOID THE GENERATION OF DUST IN THE AREA.

## 7. HANDLING & STORAGE

 top

HANDLING:

KEEP MATERIAL DRY AND AVOID TEMPERATURES OVER 70 DEG. C  
THOSE HANDLING MOLTEN RESIN DURING FABRICATION SHOULD BE PROTECTED FROM POSSIBLE CONTACT.

**STORAGE:**

STORE IN A COOL, WELL-VENTILATED AREA. KEEP CONTAINER TIGHTLY CLOSED.

**8. EXPOSURE CONTROLS & PERSONAL PROTECTION** top

ALTHOUGH SOME OF THE ADDITIVES USED IN THIS PRODUCT MAY HAVE EXPOSURE GUIDELINES, THESE ADDITIVES ARE ENCAPSULATED IN THE PRODUCT AND NO EXPOSURE WOULD BE EXPECTED UNDER NORMAL HANDLING CONDITIONS.

**VENTILATION:**

PROVIDE LOCAL EXHAUST VENTILATION WHERE HEAT CAN CAUSE POLYMER BREAKDOWN, E.G. EXTRUSION, MOLDING AND WHERE THERE IS A NEED TO DRAW DUSTS AND FUMES FROM WORKER BREATHING ZONES.

**RESPIRATORY:**

FOR CONDITIONS WHERE EXPOSURE TO DUST AND FUMES IS APPARENT, AN NIOSH APPROVED RESPIRATOR FOR DUST MISTS AND FUMES APPROPRIATE TO THE AIRBORNE CONCENTRATION MAY BE WORN. WHERE VAPORS ARE GENERATED, AN NIOSH APPROVED ORGANIC RESPIRATOR SUITABLE TO THE AIRBORNE CONCENTRATIONS IS RECOMMENDED.

**EYE PROTECTION:**

SAFETY GLASSES WITH SIDE SHIELDS ARE RECOMMENDED FOR ANY TYPE OF HANDLING. DUST-TIGHT GOGGLES ARE RECOMMENDED FOR DUSTY OPERATIONS OF AREAS WHERE VAPORS ACCUMULATE.

**SKIN:**

NO PRECAUTIONS OTHER THAN CLEAN BODY-COVERING CLOTHING SHOULD BE USED. USE GLOVES FOR INSULATION FOR THERMAL PROTECTION, WHEN NEEDED.

**9. PHYSICAL & CHEMICAL PROPERTIES** top

APPEARANCE: MILKY OFF-WHITE SOLID

ODOR: ODORLESS

VAPOR PRESSURE: NOT APPLICABLE

VAPOR DENSITY: NOT APPLICABLE

MELTING POINT: NOT APPLICABLE

BOILING POINT: NOT APPLICABLE

SPECIFIC GRAVITY: 1.05

VOLATILE BY VOLUME (WATER): NOT APPLICABLE

SOLUBILITY IN WATER: NIL

pH: NOT APPLICABLE

**10. STABILITY & REACTIVITY** top

STABILITY: STABLE

**CONDITIONS TO AVOID:**

TEMPERATURES OVER 300 DEG. C (572 DEG. F) RELEASES COMBUSTIBLE GASES

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

INCOMPATIBILITY: OXIDIZING MATERIALS

HAZARDOUS THERMAL DECOMPOSITION PRODUCTS:

DECOMPOSITION PRODUCTS DEPEND UPON TEMPERATURE, AIR SUPPLY, AND THE PRESENCE OF OTHER MATERIALS. AT TEMPERATURES EXCEEDING MELT TEMPERATURES, POLYMER FRAGMENTS CAN BE RELEASED. FUMES CAN BE IRRITATING.

## 11. TOXICOLOGICAL DATA

 top

ACUTE ORAL: NO DATA AVAILABLE. NOT EXPECTED TO BE HARMFUL.

ACUTE DERMAL: NO DATA AVAILABLE. NOT EXPECTED TO BE HARMFUL.

ACUTE INHALATION: NO DATA AVAILABLE. NOT EXPECTED TO BE HARMFUL.

SKIN IRRITATION: NO DATA AVAILABLE. NOT EXPECTED TO BE HARMFUL.

EYE IRRITATION: NO DATA AVAILABLE. NOT EXPECTED TO BE HARMFUL.

GENOTOXICITY: NO DATA AVAILABLE. NOT EXPECTED TO BE HARMFUL.

## 12. ECOLOGICAL INFORMATION

 top

MOVEMENT AND PARTITIONING:

NO BIOCONCENTRATION IS EXPECTED BECAUSE OF THE RELATIVELY HIGH MOLECULAR WEIGHT (MW >1000). IN THE TERRESTRIAL ENVIRONMENT, MATERIAL IS EXPECTED TO REMAIN IN THE SOIL. IN THE AQUATIC ENVIRONMENT, MATERIAL WILL SINK AND REMAIN IN THE SEDIMENT.

DEGRADATION AND PERSISTENCE:

THIS WATER INSOLUBLE POLYMERIC SOLID IS EXPECTED TO BE INERT IN THE ENVIRONMENT. SURFACE PHOTODEGRADATION IS EXPECTED WITH EXPOSURE TO SUNLIGHT. NO APPRECIABLE BIODEGRADATION IS EXPECTED.

ECOTOXICITY:

NOT EXPECTED TO BE ACUTELY TOXIC, BUT MATERIAL MAY MECHANICALLY CAUSE ADVERSE EFFECTS IF INGESTED BY WATERFOWL OR AQUATIC LIFE.

## 13. DISPOSAL CONSIDERATIONS

 top

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. DISPOSAL OF WASTES AND USED CONTAINERS MUST BE IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS. REGULATIONS MAY VARY IN DIFFERENT LOCATIONS. WASTE CHARACTERIZATIONS AND COMPLIANCE WITH APPLICABLE LAWS ARE THE RESPONSIBILITY SOLELY OF THE WASTE GENERATOR. STRATASYS INC. HAS NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THE MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN SECTION TWO OF THIS MSDS (COMPOSITION/INFORMATION ON INGREDIENTS).

## 14. TRANSPORT INFORMATION

 top

(NOT MEANT TO BE ALL-INCLUSIVE)

DEPARTMENT OF TRANSPORTATION (D.O.T.):  
THIS PRODUCT IS NOT REGULATED BY D.O.T. WHEN SHIPPED DOMESTICALLY BY LAND

CANADIAN TDG INFORMATION:  
THIS PRODUCT IS NOT REGULATED BY TDG WHEN SHIPPED DOMESTICALLY BY LAND

## 15. REGULATORY INFORMATION

 top

(NOT MEANT TO BE ALL-INCLUSIVE)

ALL COMPONENTS OF THIS PRODUCT ARE LISTED ON THESE CHEMICAL INVENTORIES:  
U.S. TSCA, CANADIAN DSL, EU EINECS, JAPANESE ENCS, KOREAN ECL, AUSTRALIAN AICS.

U.S. REGULATIONS:

EPA SARA TITLE III CHEMICAL LISTINGS:  
THIS PRODUCT HAS BEEN REVIEWED ACCORDING TO THE EPA "HAZARD CATEGORIES"  
PROMULGATED UNDER SECTIONS 311 AND 312 OF THE SUPERFUND AMENDMENT AND  
REAUTHORIZATION ACT OF 1986 (SARA TITLE III) AND IS CONSIDERED UNDER  
APPLICABLE DEFINITIONS, TO MEET THE FOLLOWING CATEGORIES:  
NOT TO HAVE MET ANY HAZARD CATEGORY.

CALIFORNIA PROPOSITION 65:

THE FOLLOWING STATEMENT IS MADE IN ORDER TO COMPLY WITH THE CALIFORNIA SAFE  
DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986:

WARNING:

THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO  
CAUSE CANCER.

TOXIC SUBSTANCES CONTROL ACT (TSCA):

ALL INGREDIENTS ARE ON THE TSCA INVENTORY AND ARE NOT REQUIRED TO BE LISTED  
ON THE TSCA INVENTORY.

STATE RIGHT-TO-KNOW:

THIS PRODUCT IS NOT KNOWN TO CONTAIN ANY SUBSTANCES SUBJECT TO THE  
DISCLOSURE REQUIREMENTS OF: NEW JERSEY AND PENNSYLVANIA.

OSHA HAZARD COMMUNICATION STANDARD:

THIS PRODUCT IS NOT A "HAZARDOUS CHEMICAL" AS DEFINED BY THE OSHA HAZARD  
COMMUNICATION STANDARD, 29 CFR 1910.1200.

CANADIAN REGULATIONS:

WHMIS INFORMATION:

THE CANADIAN WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)  
CLASSIFICATION FOR THIS PRODUCT IS:

THIS PRODUCT IS NOT A "CONTROLLED PRODUCT" UNDER WHMIS.

## 16 OTHER INFORMATION

 top

THE INFORMATION CONTAINED IN THE PROCEEDING REPORT IS BASED UPON CURRENT  
KNOWLEDGE, OUR EXPERIENCE WITH THE PRODUCT, AND IS NOT EXHAUSTIVE. WHILE  
NOT GUARANTEED, THE INFORMATION PRESENTED HEREIN WAS PREPARED BY A  
COMPETENT, TECHNICAL PROFESSIONAL AND IS TRUE AND ACCURATE TO THE BEST OF  
OUR KNOWLEDGE. THE INFORMATION APPLIES TO PRODUCT AS DEFINED BY THE  
SPECIFICATIONS. IF THE PRODUCT IS MIXED WITH OTHER SUBSTANCES, THE CUSTOMER

MUST CONFIRM THAT NO NEW HAZARDS EXIST. IN ALL CASES, THE USER IS NOT EXEMPT FROM FOLLOWING ALL LEGAL, ADMINISTRATIVE AND REGULATORY PROCEDURES RELATING TO THE PRODUCT, PERSONAL HYGIENE, AND THE INTEGRITY OF THE WORK ENVIRONMENT. STRATASYS INC. SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM HANDLING OR FROM CONTACT AND USE WITH THE ABOVE PRODUCT.

REVISION HISTORY:

REVISION	REVISION DATE
1.0	11/97
1.1	3/15/04
1.2	4/14/04
1.3	9/14/04