SAFETY DATA SHEET PLATINUM ETCHANT 1:1 PART B CHEMICAL PRODUCT AND COMPANY Identification Product Name: Platinum Etchant 1:1 Part B Alternate Trade Name(s): Platinum Etch B General Use: Etchant for platinum and platinum films. Manufacturer Emergency Telephone Number Transene Co. Chemtrec: 1(800)-424-9300 10 Electronics Ave. Danvers, MA 01923 978-777-7860 fax# 978-739-5640 www.transene.com COMPOSITION / INFORMATION ON INGREDIENTS Chemical Name CAS# Wt% Ammonium Persulfate 7727-54-0 15-20% HAZARDS IDENTIFICATION EMERGENCY OVERVIEW: Immediate Concerns: Oxidizer. Decomposes in storage under conditions of excessive heat causing release of oxides of sulfur, nitrogen and oxygen that supports combustion. Decomposition could form a high temperature melt. POTENTIAL HEALTH EFFECTS: Ingestion may cause irritation to mouth and stomach. Prolonged exposure may cause skin sensitization. FIRST AID MEASURES Eyes: Flush with water for at least 15 minutes. If irritation occurs and persist, obtain medical attention. Skin: Wash with plenty of soap and water. Get medical attention if irritation occurs and persists. Ingestion: Rinse mouth with water. Dilute by giving 1 or 2 glasses of water. Do not induce vomiting. Never give anything to an unconscious person. See medical doctor immediately. Inhalation: Remove to fresh air. If breathing difficulty or discomfort occurs or persists, contact a medical doctor. Notes to medical doctor: This product has a moderate oral toxicity and is minimally irritating to the eyes. Flooding of exposed areas with water is suggested, but gastric lavage or emesis induction for ingestion must consider the possible aggravation of esophageal injury and the expected absence of systemic effects. Treatment is controlled removal of exposure followed by symptomatic and supportive care. 5. FIRE FIGHTING MEASURES Flammable limits: Non- Combustible. Extinguishing media: Deluge with water. Explosion hazards: Product non-combustible. On decomposition releases oxygen which may intensify fire. presence of water accelerates decomposition. Fire fighting procedures: Do not use carbon dioxide or other gas filled fire extinguishers; they will have no effect on decomposing persulfates. Wear full protective clothing and self contained breathing apparatus. Autoignition temperature: Not applicable. No evidence of combustion up to 8000 C. Decomposition will occur upon heating. Flash point: Non-combustible. Sensitivity to static discharge: Not applicable. Sensitivity to impact: Not applicable. Hazardous decomposition products: Oxygen that supports combustion and oxides of sulfur and nitrogen. 6. ACCIDENTAL RELEASE MEASURES Release notes: Spilled material should be contained and collected and put in approved DOT container and isolated for disposal as hazardous waste. Isolated material should be monitored for signs of decomposition (fuming/smoking). All disposals should be carried out according to regulatory agencies procedures. 7. HANDLING AND STORAGE Handling: Use adequate ventilation when transferring product. Wear respiratory protection if ventilation is not available. Use eye and skin protection when contact is expected. Use clean plastic or stainless steel scoops only. Storage: Store (unopened) in a cool, dry, clean, dry place away from point of heat, e.g. radiant heaters or steam pipes. Use first in, first out storage system. Avoid contamination of opened product. In case of fire or decomposition (fuming/smoking) deluge with plenty of water to control decomposition. For storage, refer to NFPA Bulletin 43A on storage of liquid and solid oxidizing materials COMMENTS: Ventilation: Provide general mechanical and/or local exhaust ventilation. Spills should be collected into suitable containers to prevent dispersion into the air. EXPOSURE CONTROLS/PERSONAL PROTECTION Exposure limits: Chemical name: TWA STEL/ceiling PEL STEL/ceiling (ACGIH) (ACGIH) OSHA OSHA Ammonium Persulfate 0.1 mg/m³ Engineering controls: Provide mechanical and/or general room ventilation. Remove contaminated clothing Immediately and wash before reuse. Personal protective equipment and Face: Use type chemical type protective goggles. Full- face shield may be used. Respiratory: None required where ventilation is adequate. Appropriate respirator may be used. Protective clothing: Rubber or neoprene gloves. Rubber or neoprene footwear. Normal work clothes. PHYSICAL AND CHEMICAL PROPERTIES ODOR: None APPARENCE: Clear liquid PERCENT VAPOR PRESSURE: Not applicable VAPOR DENSITY: Not applicable BOILING POINT: 212C MELTING POINT: Not applicable SOLUBILITY IN WATER: % by wt. @ 25C (770 F): Not applicable EVAPORATION RATE: (Butyl Acetate=1): Not applicable DENSITY: Not applicable SPECIFIC GRAVITY: (H2O=1): 1.98 COEFF. OIL/WATER: Not applicable ODOR THRESHOLD: Not available OXIDIZING PROPERTIES: Oxidizer STABILITY AND REACTIVITY Conditions to avoid: Heat Stability: Stable ( becomes unstable in presence of heat and combustion). Sensitization: Not applicable. Polymerization: Will not occur. Hazardous decomposition products: Oxygen that supports combustion and oxides of sulfur and nitrogen. Incompatible materials: Acids, alkalies, halides (fluorides, chlorides, bromides), combustible materials, heavy metals, oxidizable materials, reducing agents and organic compounds. ToxICOLOGICAL INFORMATION Eye effects: Minimally irritating (rabbit) [FMC 187-0968] Skin effects: Non-irritating (rabbit); May be sensitizer to allergic persons. [FMC Study 187-0970] Dermal LD 50: >2000 mg/kg (rabbit) [FMC 191-1200] Oral LD50: 495 mg/kg (female rat) [FMC 191-1201] Inhalation LC50: >2.95 mg/L (rat, 4 hr. maximum attainable concentration) [FMC 187-0969] Target organs: Sensory irritation-eyes nose, throat and lungs Acute effects from over exposure: Dust may be harmful and irritating. Ammonium persulfate has low dermal toxicity and is moderately toxic when ingested. Product is minimally irritating to the eyes and non-irritating to the skin. Chronic effects from overexposure: Sensitive persons may develop dermatitis and asthma [Respiration 38:144,1979]. Carcinogenicity: IARC: Not listed NTP: not listed OSHA: Not listed OTHER ACGIH: Not listed ECOTOXICOLOGICAL INFORMATION: Toxicological effects: Bluegill sunfish, 96-hr LC50=103 mg/L [FMC 192-1246] Rainbow trout, 96-hr LC50=76.3 mg/L [FMC 192-1247] Daphnia, 48-hr LC50=120 mg/L [FMC 192-1248] Grass shrimp, 96-hr LC50=391 mg/L [FMC 192-1249] Chemical fate information: Biodegradable does not apply to inorganic substances. DISPOSAL CONSIDERATIONS Disposal method: Dispose as a hazardous waste in accordance with regulatory agencies. TRANSPORT INFORMATION U.S. DOT (Department of Transportation) Proper Shipping Name: Ammonium Persulfate Primary Hazard Class/Division: 5.1 (Oxidizer) UN/NA Number: UN 1444 Placards: 5:1 (Oxidizer) Labels: Oxidizer Special Shipping Notes: IMDG: Ammonium Persulfate IATA : Ammonium Persulfate Protect from physical damage. Do not store near acids or heat. NFPA Rating: Health: 1 Flammability: 0 Reactivity: 1 Special: Oxidizer REGULATORY INFORMATION United States SARA TITLE III (Superfund Amendments and Reauthorization Act) Section 311 Hazard Category (40 CFR 370): Fire Hazard, Immediate (acute) Health Hazard. Section 312 Threshold Planning Quantity (40 CFR 370): 10000 lbs. Section 313 Reportable Ingredients (40 CFR 372): Not listed SARA TITLE I Section 302 Extremely Hazardous Substances (40 CFR 355): Not listed CERCLA (Comprehensive Environmental Response Compensation and Liability Act) CERCLA Regulatory (40 CFR 302.4): Unlisted, RQ=100 lbs., Ignitability TSCA (Toxic Substances Control Act) TSCA Status (40 CFR 710): Listed RCRA Status: Waste No. D001 Canada WHMIS (Worker Hazardous Materials Information System); Product Identification No. 1444 Hazardous Classification: class C (Oxidizer), Class D, Div. 2. Subdiv. B (Toxic) Ingredients Disclosure List: Listed OTHER INFORMATION Revision Summary: Summary #2 This MSDS replaces the May 1997 Revision . Platinum Etchant 1:1 Part B PAGE 1