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 \* MATERIAL SAFETY DATA SHEET \*  
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For screen printing inks as required under 29 CFR 1910.1200(g).

SERICOL, INC.  
 20 WEST 14TH AVENUE  
 NORTH KANSAS CITY, MISSOURI 64116  
 (816) 474-0650

\*\*\*HMIS RATINGS\*\*\*  
 HEALTH-----1  
 FLAMMABILITY-----3  
 REACTIVITY-----3

EMERGENCY PHONE NUMBER (816) 587-8178  
 PREPARER: CRAIG POGGENPOHL DATE OF PREPARATION  
 REGULATORY COMPLIANCE MGR. REVISED 08/04/04/CP

REVISIONS: SECTIONS II AND IV.

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 SECTION I--PRODUCT IDENTIFICATION  
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PRODUCT CODE : P57100 P57121 P57245 P57350 P57500  
 P57505 P59992 381314  
 LABEL IDENTITY: ALUMINUM POWDER 30, SF121, 4500,  
 1400, 7500, ATA 7300, CHOMAL IV,  
 VENUS 53  
 PRODUCT CLASS : INK ADDITIVE-METALLIC POWDER

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 SECTION II--HAZARDOUS INGREDIENTS  
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COMMON NAME (CAS REGISTRY #)	RECOMMENDED EXPOSURE LIMITS (PPM)1		VAPOR PRESSURE (mm Hg @ 20 C)1
	ACGIH TLV-TWA	OSHA PEL	
ALUMINUM POWDER (7429-90-5)	10 mg/m3	15 mg/m3 (TOTAL DUST) 5 mg/m3 (RESPIRABLE FRACTION)	NA
STEARIC ACID (57-11-4)	NE	NE	NA

NA - NOT APPLICABLE      NE - NOT ESTABLISHED      UKN - UNKNOWN  
 1UNLESS NOTED OTHERWISE, THE UNITS ARE PPM AND mm Hg @ 20 C,  
 RESPECTIVELY, FOR EXPOSURE LIMITS AND VAPOR PRESSURES.

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 SECTION III -- PHYSICAL AND CHEMICAL CHARACTERISTICS  
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BOILING POINT: APPROXIMATELY 3,272 DEG. F.  
 MELTING POINT: 1220 DEG. F.  
 SPECIFIC GRAVITY: 2.7  
 DENSITY: 22.5 LB./GAL.  
 VOLATILES: NA.  
 APPEARANCE AND ODOR: FINELY DIVIDED METALLIC FLAKE POWDER; SILVER COLOR;  
 ODORLESS.

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SECTION IV -- PHYSICAL HAZARD DATA  
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CLOSED CUP FLASH POINT: NA.  
LOWER EXPLOSIVE LIMIT: 40 G/M3  
OSHA/DOT CLASSIFICATION: FLAMMABLE SOLID  
DOT/UN SHIPPING DESCRIPTION: ALUMINUM POWDER, COATED, 4.1, UN1309, PGII

EXTINGUISHING AGENTS: NEVER USE A FIRE EXTINGUISHER OF ANY TYPE ON A BURNING ALUMINUM POWDER FIRE. BURNING ALUMINUM POWDER CREATES A VERY SERIOUS DANGER BECAUSE IF IT IS DISTURBED IN ANY MANNER THAT RESULTS IN

THE FORMATION OF A CLOUD OF ALUMINUM DUST, THERE IS AN EXTREMELY SERIOUS RISK THAT THE DUST COULD EXPLODE. THE ONLY EFFECTIVE METHOD OF EXTINGUISHING AN ALUMINUM POWDER FIRE IS TO REMOVE ITS SOURCE OF OXYGEN, AND ALLOW THE FIRE TO BURN ITSELF OUT. NEVER USE WATER OR HALOGENATED HYDROCARBON EXTINGUISHERS TO ATTEMPT TO EXTINGUISH AN ALUMINUM POWDER FIRE. WATER REACTS WITH BURNING ALUMINUM TO FORM HIGHLY FLAMMABLE HYDROGEN GAS WHICH WILL SPREAD THE FIRE. HALOGENATED HYDROCARBONS WILL REACT VIOLENTLY WITH BURNING ALUMINUM POWDER.

SPECIAL FIREFIGHTING PROCEDURES: IF A FIRE SHOULD OCCUR WITH ALUMINUM POWDER ON A FLAT SURFACE, SUCH AS A FLOOR OR A PLATFORM, USE A LONG HANDLED SHOVEL MADE FROM NON-SPARKING MATERIAL SUCH AS ALUMINUM, COPPER, OR BRONZE, AND USING EXTREME CAUTION SO AS NOT TO GENERATE A CLOUD OF ALUMINUM DUST, VERY GENTLY SPRINKLE A RING OF FINE, TOTALLY DRY SAND AROUND THE BURNING ALUMINUM POWDER TO PREVENT IT FROM SPREADING. ALLOW THE POWDER TO COOL TO AMBIENT TEMPERATURE BEFORE COLLECTING IT FOR DISPOSAL.

IF A FIRE SHOULD OCCUR IN A DRUM OF ALUMINUM POWDER, ONE SHOULD USE EXTREME CAUTION AND TRY TO COVER THE DRUM WITH A FLAT COVER AS A MEANS OF CUTTING-OFF THE SUPPLY OF OXYGEN. ALLOW THE DRUM TO COOL TO AMBIENT TEMPERATURE BEFORE ATTEMPTING TO DISPOSE OF THE BURNED CONTENTS.

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SECTION V -- EMERGENCY AND FIRST-AID PROCEDURES  
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EYE CONTACT: IMMEDIATELY WASH EYES WITH LARGE AMOUNTS OF WATER, OCCASIONALLY LIFTING THE EYE LIDS. GET MEDICAL ATTENTION. DO NOT WEAR CONTACT LENSES WHILE WORKING WITH ALUMINUM POWDER.

SKIN CONTACT: WASH WITH SOAP AND WATER. GET MEDICAL ATTENTION IF IRRITATION PERSISTS.

INHALATION: IF A PERSON BREATHES IN LARGE AMOUNTS OF ALUMINUM POWDER, MOVE TO FRESH AIR IMMEDIATELY. IF BREATHING HAS STOPPED, PERFORM ARTIFICIAL RESPIRATION, AND GET MEDICAL ATTENTION AT ONCE.

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SECTION VI -- SIGNS AND SYMPTOMS OF OVEREXPOSURE  
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PRIMARY ROUTE (S) OF ENTRY: DERMAL INHALATION INGESTION

EFFECTS OF OVEREXPOSURE: ALUMINUM POWDER CAN CAUSE TRANSITORY EYE, NOSE, AND THROAT IRRITATION. NO TOXIC EFFECTS ARE EXPECTED.

CHRONIC EFFECTS: NO DATA.

CARCINOGENICITY: NTP: NO IARC: NO OSHA: NO

ADDITIONAL KNOWN HEALTH HAZARDS: NO DATA.

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SECTION VII -- REACTIVITY DATA  
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THIS MIXTURE IS STABLE AND HAZARDOUS POLYMERIZATION MAY NOT OCCUR.

INCOMPATIBILITY (MATERIALS TO AVOID): AVOID ANY CONTACT WITH OXIDIZING AGENTS, ACIDS, ALKALIES, WATER, AND HALOGENATED HYDROCARBONS.

HAZARDOUS DECOMPOSITION PRODUCTS: ALUMINUM REACTS WITH STRONG OXIDIZING AGENTS, ACIDS, ALKALIES, AND WATER TO LIBERATE HYDROGEN GAS. WHEN ALUMINUM BURNS, ALUMINUM OXIDE IS FORMED.

CONDITIONS TO AVOID: AVOID ANY POTENTIAL CONTACT WITH HEAT, SPARKS, OPEN FLAME, FIRE, AND OPEN LIGHTS. USE ONLY EXPLOSION PROOF EQUIPMENT, AND GROUND ALL EQUIPMENT AGAINST THE POTENTIAL FOR STATIC ELECTRICITY. USE NON-SPARKING TOOLS FOR ANY TRANSFER OF ALUMINUM POWDER BETWEEN CONTAINERS, AND ENSURE THAT ALL CONTAINERS HAVE A COMMON GROUND.

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SECTION VIII -- SPILL OR LEAK PROCEDURES  
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STEPS TO BE TAKEN IF MATERIAL IS SPILLED OR RELEASED: GENTLY SPRINKLE THE AREA WITH AN INERT FLOOR SWEEPING COMPOUND, AND USING A NATURAL HAIR BRISTLE BROOM, GENTLY SWEEP THE MATERIAL AND TRANSFER TO A MOISTURE PROOF, WASTE DISPOSAL CONTAINER USING A LONG-HANDLED SHOVEL MADE OF NON-SPARKING MATERIAL. SEAL THE CONTAINER FOR DISPOSAL.

WASTE DISPOSAL METHOD: DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.

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SECTION IX -- SAFE HANDLING AND USE INFORMATION  
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RESPIRATORY PROTECTION: USE NIOSH APPROVED DUST MASKS OR RESPIRATORS.

VENTILATION REQUIREMENTS: USE LOCAL EXHAUST GROUNDED AGAINST STATIC ELECTRICITY. FOR MECHANICAL VENTILATION, USE ONLY EXPLOSION PROOF EQUIPMENT.

PROTECTIVE GLOVES: USE ONLY COTTON GLOVES.

HYGIENIC PRACTICES: ALWAYS WASH HANDS BEFORE EATING, SMOKING, OR USING TOILET FACILITIES. DO NOT WEAR CONTAMINATED CLOTHING.

CLOTHING: OUTER CLOTHING MUST BE CLEAN, FLAME-RESISTANT, NON-STATIC-GENERATING, AND DESIGNED TO BE EASILY REMOVABLE. IF NECESSARY, TIGHTLY WOVEN, SMOOTH FABRICS TREATED WITH A FLAME-RETARDANT CHEMICAL SHOULD BE USED. WORK CLOTHING SHALL HAVE NO EXTERNAL POCKETS UNLESS COVERED WITH A FLAP FITTED WITH A CLOSURE DEVICE. TROUSERS SHALL HAVE NO CUFFS. SAFETY SHOES SHOULD BE WORN BY ALL PERSONNEL AND MEET THE FOLLOWING REQUIREMENTS:

- (A) SOLES SHALL BE RESISTANT TO EMBEDDING PARTICLES AND SOLVENTS OF ALL TYPES.
- (B) SOLES AND HEELS SHALL BE ATTACHED BY SEWING OR PEGGING. NAILS, METAL CLEATS, AND METAL PLATES SHALL NOT BE USED.
- (C) SAFETY TOE CAPS SHALL BE COVERED WITH A SCUFF-RESISTANT MATERIAL.
- (D) SOLES AND HEELS SHALL BE STATIC CONDUCTIVE.

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SECTION X -- SPECIAL PRECAUTIONS  
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PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: READ PRECAUTIONARY WRITTEN WARNING LABEL ON DRUMS BEFORE OPENING.

STORAGE AND HANDLING: STORE IN A COOL, DRY AREA. AVOID ANY CONTACT WITH WATER VAPOR. DO NOT STORE NEAR OXIDIZERS, ACIDS, ALKALIES, WATER, HALOGENATED HYDROCARBONS, OR COMBUSTIBLE MATERIALS. KEEP CONTAINER CLOSED WHEN NOT IN USE. AVOID SPILLAGE AND/OR THE CREATION OF AN ALUMINUM DUST CLOUD. TRANSFER ALUMINUM WITH NON-SPARKING TOOLS ONLY, AND INSURE THAT EQUIPMENT IS ELECTRICALLY GROUNDED.

OTHER PRECAUTIONS: VEHICLES USED IN THE AREA SHOULD HAVE NON-SPARKING WHEELS. INSTALL ELECTRICAL EQUIPMENT THAT IS SUITABLE FOR USE IN HAZARDOUS ATMOSPHERES IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.

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SECTION XI -- DISCLAIMER  
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SERICOL, INC. MAKES NO WARRANTY, EXPRESSED OR IMPLIED, AS TO THE ACCURACY OR RELIABILITY OF INFORMATION CONTAINED HEREIN, EXCEPT THAT SUCH INFORMATION IS, TO THE BEST OF SERICOL'S KNOWLEDGE AND BELIEF, ACCURATE AS OF THE DATE INDICATED ON THIS DOCUMENT. FINAL DETERMINATION OF SUITABILITY OF ANY MATERIAL IS THE SOLE RESPONSIBILITY OF THE USER. ALL MATERIALS MAY PRESENT UNKNOWN HEALTH HAZARDS AND SHOULD BE USED WITH CAUTION. ALTHOUGH CERTAIN HAZARDS ARE DESCRIBED HEREIN, WE CANNOT GUARANTEE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

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SECTION XII -- PURCHASERS' OBLIGATIONS  
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SERICOL, INC. URGES THE CUSTOMER RECEIVING THIS MATERIAL SAFETY DATA SHEET TO STUDY IT CAREFULLY TO BECOME AWARE OF HAZARDS, IF ANY, OF THE PRODUCTS INVOLVED. IN THE INTEREST OF SAFETY, YOU SHOULD (1) NOTIFY YOUR EMPLOYEES, AGENTS, AND CONTRACTORS OF THE INFORMATION ON THIS SHEET, (2) FURNISH A COPY TO EACH OF YOUR CUSTOMERS FOR THIS PRODUCT, AND (3) REQUEST YOUR CUSTOMERS TO INFORM THEIR EMPLOYEES, CUSTOMERS, AND AGENTS, AS WELL.

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SECTION XIII -- REGULATORY INFORMATION  
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TOXIC SUBSTANCES CONTROL ACT (TSCA) STATUS: THE INGREDIENTS OF THIS PRODUCT ARE LISTED ON THE TSCA INVENTORY.

THIS PRODUCT CONTAINS A TOXIC CHEMICAL OR CHEMICALS SUBJECT TO THE ANNUAL REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 AND 40 CFR PART 372.

ALUMINUM, CAS# 7429-90-5, >95% BY WEIGHT.

THIS NOTIFICATION MUST NOT BE DETACHED FROM THE MATERIAL SAFETY DATA SHEET (MSDS) AND ANY COPYING AND REDISTRIBUTION OF THE MSDS SHALL INCLUDE COPYING AND REDISTRIBUTION OF THE NOTICE ATTACHED TO COPIES OF THE MSDS SUBSEQUENTLY REDISTRIBUTED.

STATE OF CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986 (PROPOSITION 65): THIS PRODUCT DOES NOT CONTAIN CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER OR REPRODUCTIVE TOXICITY.