MATERIAL SAFETY DATA SHEET

DATE ISSUED : April 01, 2002 DATE REVISED : June 01, 2007

LANGUAGE : ENGLISH

1. PRODUCT & COMPANY IDENTIFICATION

COMPANY NAME : UMG ABS, LTD.

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PRODUCT IDENTIFIER : UMG ALLOY® **CV88B**
Acrylonitrile-Butadiene-Butylacrylate-Styrene-alpha-Methylstyrene-N-phenylmaleimide copolymer (CAS# 26657-42-1and 84741-24-2) and polycarbonate(CAS#25971-63-5)or derivative

PRODUCT DESCRIPTION : Synthetic thermoplastic polymer

PRODUCT USE : May be used to produce molded or extruded articles or as a component of other industrial products.

2. COMPOSITION/INFORMATION ON INGREDIENTS

This product consists primarily of high molecular weight polymers. Substances listed below are reportable hazardous ingredients as defined by the OSHA Hazard Communication Standard. Exposure limits, when available, are also listed. Styrene, if present, is listed below based upon its IARC classification as a possible carcinogen.

Additional compositional data are also provided in Section 15, REGULATORY INFORMATION, subject to supplier notification requirements.

Component NAME	%	CAS NUMBER	OSHA PEL	ACGIH TWA
Styrene	0.1-1	100-42-5	100.0 ppm TWA 200.0 ppm C	20.0 ppm TWA 85.0 mg/m3 TWA

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW : Solid pellets with slight or no odor. Spilled pellet create slipping hazard. Can burn in a fire creating dense toxic smoke. Molten plastic can cause severe thermal burns. Fumes produced during melt processing may cause eye, skin and respiratory tract irritation. Secondary operations, such as grinding, sanding or sawing, can produce dust which may present an explosion or respiratory hazard.

EYE : Product (pellet, or dust through mechanical processing) may cause irritation or injury due to mechanical action.

POTENTIAL HEALTH EFFECTS

SKIN : Pellets not likely to cause skin irritation. However, dust may cause some skin irritation in certain sensitive individuals.

INGESTION : Not acutely toxic.

INHALATION : Pellets inhalation unlikely due to physical form. Dust generated may present a respiratory irritation.

MELT PROCESSING HEALTH EFFECTS:

Molten plastic can cause severe burns.

Processing fumes may cause irritation to the eyes, skin and respiratory tract, and in cases of severe over-exposure, nausea and headache. Grease-like processing fume condensates on ventilation duct work, molds and other surfaces can cause irritation and injury to skin.

MEDICAL RESTRICTIONS : When heated up to processing temperatures virtually all emit processing fumes. The exact composition and concentration of these processing fumes depend on the resin formulation including additives, the residence time in the processing equipment, equipment variables such as screw design, venting parameters etc., and the processing recommended guidelines(available on request) and taking normal precautions detailed below there are no known adverse effects to human health. Certain sensitive individuals and those with respiratory impairments, however, may experience some temporary irritation by exposure to specific components in the processing fumes.

4. FIRST AID MEASURES

EYES : Remove contact lenses at once unless contact lense(s) sticks to eye(s) ball(s). Immediately flush the affected eye(s) well with copious quantity of clean water or normal saline for at least 20 minutes. Do not let him rub his eye(s) to the irritation and damages to cornea(s). Seek medical attention, if irritation persists.

SKIN : Wash skin thoroughly with soap and water. Seek medical attention if rash or burn occurs.

INGESTION : Not probable. If a large amount is swallowed, seek medical attention.

INHALATION : Not likely to be inhaled due to physical form.

MELT PROCESSING : For molten plastic skin contact, cool rapidly with water and immediately seek medical attention. Do not attempt removal of plastic without medical assistance. Do not use solvent for removal.

For processing fume inhalation irritation, leave contaminated area and breathe fresh air. If coughing, difficult breathing or any other symptoms develop seek medical attention at once, even if symptoms develop at a later time.

For skin contact with fume condensate, immediately wash thoroughly with soap and water. If irritation develops seek medical attention.

5. FIRE FIGHTING MEASURES

FIRE FIGHTING : Approved pressure demand breathing apparatus and protective closing should be used for all fires. Water spray is the preferred extinguishing medium. Care should be taken to avoid creating dust clouds. This product will melt but will not be carried on the surface of water.

EXTINGUISHING MEDIA : Water spray and foam. Water is the best extinguishing medium. Carbon dioxide and dry chemical are not generally recommended because their lack of cooling capacity may permit re-ignition.

HAZARDOUS COMBUSTION PRODUCTS : Hazardous combustion products may include intense heat, dense black smoke, carbon monoxide, carbon dioxide, traces of hydrogen cyanide and hydrocarbon fragments.

FLASH POINT : Not Applicable

LOWER FLAMMABLE LIMIT : Not Established

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AUTOIGNITION : 500 degrees C (932 F) or over, estimated

CONDITIONS OF FLAMMABILITY : Requires a continuous flame source to ignite and sustain combustion.

EXPLOSION DATA

IMPACT SENSITIVITY : Not sensitive to mechanical impact.

STATIC DISCHARGE : Not sensitive to static discharge. (See HANDLING AND STORAGE)

6. ACCIDENTAL RELEASE MEASURES

GENERAL : Immediately sweep or gather up material and place in proper container for disposal or recover because there is a danger of slippage or overturn of persons and also a risk of the environmental contamination of the rivers and the seas when leaked outside. (See DISPOSAL INFORMATION)

7. HANDLING AND STORAGE

HANDLING : Gases and fumes in the drying and molding process may cause irritation to the skin and respiratory tract. Prevent contact with skin and eyes. Use industrial hygiene practices. Provide adequate ventilation. Secondary operation such as grinding, sanding or sawing may produce a dust explosion hazard. Use aggressive housekeeping activities to prevent dust accumulation; employ bonding, grounding, venting and explosion relief provisions in accordance with accepted engineering practices.

STORAGE : Store in a dry place away from moisture, excessive heat and sources of ignition. Avoid direct sunlight. To avoid risk of collapse, do not stack unsupported boxes too high.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS : A continuous supply of fresh air to the workplace together with removal of processing fumes through exhaust systems is recommended. Processing fume condensate may be a fire hazard and toxic; remove periodically from exhaust hoods, duct work and other surfaces using appropriate personal protection. For powders and residual dust refer to HANDLING AND STORAGE section. Ventilation requirements must be locally determined to limit exposure to materials at their point of use. Design techniques and guidelines may be found in publications such as: Industrial Ventilation; available from the American Conference of Governmental Industrial Hygienists, Committee on Industrial Ventilation, P.O. BOX 16153, Lansing, MI 48901.

PERSONAL PROTECTION

EYE/FACE : Wear safety glasses with side shields or chemical goggles. In addition, use full face shield when cleaning processing fume condensates from hoods, ducts and other surfaces.

SKIN : When handling pellets avoid prolonged or repeated contact with skin. When melt processing product wear long pants, long sleeves, well insulated gloves and face shield when applicable. Use appropriate protective clothing, including chemical resistant gloves, to prevent any contact with processing fume condensates.

RESPIRATORY : When processing fumes are not adequately controlled, use respirator approved for protection from organic vapors and acid gases. When dust or powder from secondary operations, such as grinding, sanding or sawing, are not adequately controlled use respirator approved for protection from dust.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	: Solid
ODOR AND APPEARANCE	: Plastics pellet with slight odor
BOILING POINT	: Not Applicable
MELTING POINT	: See COMMENT below
VAPOR PRESSURE(mmHg)	: Negligible
VAPOR DENSITY(air=1)	: Not Applicable
SPECIFIC GRAVITY(water=1)	: > 1
WATER SOLUBILITY	: Insoluble
%VOLATILES	: Negligible
pH	: Not Applicable
ODOR THRESHOLD	: Not Established
EVAPORATION RATE	: Negligible
COEFFICIENT WATER/OIL DISTR	: Not Established

COMMENT : This product does not exhibit a sharp melting point, but softens over a wide temperature range.

10. STABILITY AND REACTIVITY

STABILITY : Stable under recommended conditions of storage and handling.

REACTIVITY : Not reactive under recommended conditions of handling, storage, processing and use.

CONDITIONS TO AVOID : Do not exceed melt temperature recommendations in product literature. In order to avoid autoignition/hazardous decomposition of hot thick masses of plastic, purgings should be collected in small, flat shapes or thin strands to allow for rapid cooling and quench in water. Do not allow product to remain in barrel at elevated temperatures for extended periods of time ; ge with a general purpose resin. For powders and residual dust refer to HANDLING AND STORAGE section. (See EXPOSURE CONTROLS /PERSONAL PROTECTION section for respiratory protection advice.)

HAZARDOUS DECOMPOSITION : Processing fumes evolved at recommended processing conditions may include trace levels of styrene, acrylonitrile, acetophenone, ethylbenzen, cumene,4-vinylcyclohexene, N-phenylmaleimide and phenols.

11. TOXICOLOGICAL INFORMATION

PRODUCT:

ACUTE ORAL Oral LD50 (Rat) >5 g/kg, estimated

COMPONENTS:

Styrene and acrilonitrile monomer are listed as 2B(a possible carcinogen) by IARC. Rats exposed to acrylonitrile by inhalation or ingestion induced brain, zymball gland(no comparable human gland) and stomach tumors.

12. ECOLOGICAL INFORMATION

GENERAL : Not expected to present any significant ecological problems.

13. DISPOSAL INFORMATION

RCRA HAZARDOUS WASTE : Product is not a RCRA hazardous waste.

WASTE DISPOSAL : Recycling is encouraged. Landfill or incinerate in accordance with federal, state and local requirements. Collected processing fume condensates should be tested to determine waste classification.

14. TRANSPORTATION INFORMATION

GENERAL : This product is not subjected to transport regulations.

DOT HAZARD CLASS : Not Regulated

PROPER SHIPPING NAME : Not Regulated

IDENTIFICATION NUMBER : Not Listed

TDGA : Not Listed

15. REGULATORY INFORMATION

Listed below are chemical component/impurities subject to supplier notification requirements. The percentages, when present, represent average values.

COMPONENT NAME	CAS NUMBER	SARA313	CA-65
Styrene	100-42-5	0.1-1 %	-
Acrylonitrile	107-13-1	-	0.001-0.01%
4-Vinylcyclohexene	100-40-3	-	0.001-0.01%

CA-65: Chemical substances identified under the California Proposition 65 column are known to the State of California to cause cancer and/or reproductive toxicity.

TSCA STATUS: This product complies with the Chemical Substance Inventory requirements of the US EPA Toxic Substances Control Act(TSCA).

WHMIS CLSSIFICATION: D2

16. OTHER INFORMATION

This publication provides information and guidelines for safe handling and processing of UMG ABS's resins and is based on currently available experience and knowledge. It is not designed as a comprehensive product performance data sheet, nor as a guide to application possibilities of our materials.

Users should follow all applicable local regulations governing Health and Safety at work, and are requested to pass this publication on to all relevant employees and customers.

ABBREVIATIONS:

ACGIH: American Conference of Governmental Industrial Hygienists

CA-65: California Proposition 65 (Safe Drinking Water & Toxic Enforcement Act)

CAS: Chemical Abstracts Service

IARC: International Agency for Research on Cancer

PEL: Permissible Exposure Limit

OSHA: Occupational Safety and Health Administration.

RCRA: Resource Conservation and Recovery Act.

SARA313: Superfund Amendments and Reauthorization Act, Section 313

TLV: Threshold Limit Value

WHIMS: Canadian Workplace Hazardous Materials Information System.