

## MATERIAL SAFETY DATA SHEET

**1. PRODUCT IDENTIFICATION**

1.1	Product Name:	System Six™ A component
1.2	Chemical Name:	See ingredients listed in section 2
1.3	Synonyms:	None reported by the manufacturer
1.4	Trade Names:	System Six R, S, FF
1.5	Product Use:	
1.6	Manufacturer's Name:	Sakura Enterprises, Inc. dba Inflatable Technologies
1.7	Manufacturer's Address:	2290 S. Lipans St. Denver, CO 80223
1.8	Business Phone:	303-922-3111
1.9	Emergency Phone:	<b>303-922-3111</b>

**2. COMPOSITION & INGREDIENTS**

COMPOSITION	CAS No./ RTECS No.	%	EXPOSURE LIMITS IN AIR (mg/m³)					
			OSHA					
			TWA	STEL	CEILING	IDLH	UNITS	
Proprietary Polymer	Proprietary	80-90	NA	NA	N A	NA	NA	
Methylene bis(4-cyclohexylisocyanate)	5124-30-1	2-5	0.005	NA	0.01	NA	ppm	
Butyl Ethanoate	123-86-4	10-20	150	200	NA	NA	ppm	

**3. IDENTIFICATION OF RISKS**

3.1	Hazard Identification:	HEALTH: 2	FLAMMABILITY: 3	REACTIVITY : 1	PERSONAL PROTECTION: J
3.2	Routes of Entry:	INHALATION: YES		SKIN & EYES: YES	
3.3	Effects of Exposure:	INGESTION: YES			
		EYES: Possible irritation and burning sensation. SKIN: Possible irritation and dermatitis. INGESTION: Possible gastrointestinal irritation, nausea, vomiting or diarrhea. INHALATION: Mucous membrane irritation			
3.4	Symptoms of Exposure:	EYES: Irritation and burning sensation.Temporary corneal damage may occur.(Usually reversible) SKIN: Possible irritation and dermatitis (rash), characterized by red, dry, itching skin. INGESTION: Gastrointestinal corrosion, nausea, vomiting, and headache. INHALATION: Bronchitis, bronchial spasms, and pulmonary edema have been reported			
3.5	Acute Health Effects:	EYES: Irritation. SKIN: Possible irritation and dermatitis (rash).Isocyanate sensitivity INGESTION: Possible gastrointestinal irritation, nausea, vomiting or diarrhea. INHALATION: Lung damage , liver abnormalities, kidney, and or spleen damage.			
3.6	Chronic Health Effects:	Possible lung, kidney, liver and spleen damage.			
3.7	Target Organs:	Skin, eyes, lungs, kidney, liver and spleen.			
3.8	Toxicological Properties:	See section 11.			

**4. FIRST AID**

4.1	First Aid:	<b>EYES:</b> Flush eyes thoroughly with copious amounts of water for at least 20 minutes, holding eyelids open to ensure complete flushing. If irritation persists, contact a physician. <b>SKIN:</b> Wash affected areas with soap and water. If irritation persists, contact a physician. Launder clothing before reuse. <b>INGESTION:</b> Do not induce vomiting. If vomiting occurs spontaneously, keep victim's head lowered (forward) to reduce the risk of aspiration. Get medical attention immediately. <b>INHALATION:</b> Remove victim to fresh air at once.
4.2	Medical Conditions Aggravated by Exposure:	None known.

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**5. FIRE & EXPLOSION HAZARDS**

5.1	Flashpoint & Method:	24° C T.C.C.
5.2	Autoignition Temperature:	425° C
5.3	Flammability Limits:	Lower Explosive Limit (LEL): 1.70% Upper Explosive Limit (UEL): 7.60%
5.4	Fire & Explosion Hazards:	Flammable Liquid. Vapors are heavier than air.
5.5	Extinguishing Methods:	CO <sub>2</sub> , Alcohol Foam, Dry Chemical, or Water Spray
5.6	Firefighting Procedures:	Firefighters should wear full-face, self-contained breathing apparatus (MSHA/NIOSH approved or the equivalent) and impervious clothing.

**6. SPILLS & LEAKS**

6.1	Spills:	Secure spill area and maximize ventilation. Deny entry to all unprotected individuals. Individuals involved in the cleanup must wear appropriate personal protective equipment. Recover free liquid or cover with inert absorbent material and place into appropriate container(s) for disposal. If necessary, dike well ahead of the spill to prevent runoff into drains, sewers or any natural waterway or drinking supply. Neutralize with a mixture of ammonia, detergent, and water.
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**7. STORAGE & HANDLING**

7.1	Work & Hygiene Practices:	Use normal hygiene practices. Avoid breathing vapors. Avoid direct skin contact. Wash hands thoroughly after using this product and before eating, drinking, or smoking.
7.2	Storage & Handling:	Use and store in a cool, dry, well-ventilated area. Keep away from excessive heat, open flames, sparks, and other possible sources of ignition. Do not store in unmarked containers or storage devices.
7.3	Special Precautions:	Readily available emergency fire, first aid, and spill response equipment and/or measures are highly recommended.

**8. EXPOSURE CONTROL & PERSONAL PROTECTION**

8.1	Ventilation & Engineering Controls:	Explosion-proof ventilation equipment is sufficient for use with this product. Local exhaust is recommended in enclosed or confined spaces.
8.2	Respiratory Protection:	A respiratory protection program that meets ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.
8.3	Eye Protection:	Safety glasses with side shields should be used with this product. If splashing is anticipated, splash goggles and a faceshield are recommended.
8.4	Hand Protection:	Where contact is likely, impervious gloves are recommended. Do not wear rings, watches, or jewelry that could entrap the material against the skin.
8.5	Body Protection:	None required under normal conditions.

**9. PHYSICAL & CHEMICAL PROPERTIES**

9.1	Density:	8.5 lb/gal
9.2	Boiling Point:	> 111°C
9.3	Volatility:	10-20 %
9.4	Evaporation Rate:	1.0 (water = 1)
9.5	Vapor Pressure @ 18°C:	20mm Hg
9.6	Molecular Weight:	NA
9.7	Appearance & Colour:	Viscous, clear liquid
9.8	Odor Threshold ppm:	NA
9.9	Solubility:	Reacts in water
9.10	pH:	NA
9.11	Viscosity:	NA
9.12	Coefficient Oil/Water Distribution:	NA
9.13	Additional Information:	Vapor density 3.72 (Air = 1.0)

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**10. STABILITY & REACTIVITY**

10.1	Stability:	Stable under normal conditions.
10.2	Decomposition Products:	Heat and CO, CO <sub>2</sub> , N Oxides, HCN, TDI, solvents. Reacts with H <sub>2</sub> O to form heat, CO <sub>2</sub> and ureas.
10.3	Polymerization:	Contact with isocyanate substances or moisture. May occur at extreme temperatures.
10.4	Conditions to Avoid:	Close proximity to incompatible substances. High temperatures and sources of ignition.
10.5	Incompatible Substances:	Strong acids, strong bases, alcohols, water and amines. Some copper alloys.

**11. TOXICOLOGICAL INFORMATION**

11.1	Toxicity Data:	Methylene bis(4-cyclohexylisocyanate)
11.2	Acute Toxicity(H&S scale):	Ld50=4, Dermal LD50=5, Inhalation LC50=3
11.3	Chronic Toxicity:	NA
11.4	Suspected Carcinogen:	NO
11.5	Reproductive Toxicity:	
	Mutagenicity:	Negative Ames Test.
	Embryotoxicity:	None Determined.
	Teratogenicity:	None Determined.
	Reproductive Toxicity:	None Determined.
11.6	Irritancy of Product:	NA
11.7	Biological Exposure Indices:	NA
11.8	Medical Recommendations:	Treat symptomatically.

**12. ECOLOGICAL INFORMATION**

12.1	Environmental Stability:	The manufacturer has not reported detailed studies on the environmental fate of the material. However, prudent practice would dictate the material not be allowed to enter the environment.
12.2	Effect on Plants & Animals:	The manufacturer has not reported any plant and animal effects.
12.3	Effect on Aquatic Life:	The manufacturer has not reported any aquatic life effects.

**13. DISPOSAL CONSIDERATIONS**

13.1	Waste Disposal:	Dispose of in accordance with federal, state & provincial hazardous waste laws.
13.2	Special Considerations:	If the material is unsuitable for recycling or reclamation, enclosed-controlled incineration is recommended unless otherwise prohibited by local ordinance.

**14. TRANSPORTATION INFORMATION**

14.1	DOT CLASS:	3	Shipping Name: Coating Solution
14.2	UN/NA:	1139	
14.3	ER Guide Number:	128	
14.4	Packing Group:	2	

**15. REGULATORY INFORMATION**

15.1	SARA Reporting Requirements:	This product does contain substances subject to SARA reporting requirements.
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**15. REGULATORY INFORMATION**

15.2	Canada WHMIS:	COMPOSITION	CAS No./ RTECS No.	%
		Methylene bis(4-cyclohexylisocyanate)	5124-30-1	2-5
15.3	SARA 313:	NA		
15.4	CA PROP 65:	NA		
15.5	OSHA 29 CFR 1910.1200:	Hazardous		
15.6	TSCA:	On TSCA inventory.		

**16. OTHER INFORMATION**

16.1	Other Information:	This product has been classified according to the hazard criteria of the U.S. Occupational Safety & Health Administration's hazard Communication Standards and Health Canada's Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR. The components of this product are listed on the DSL/NDSL. None of the components of this product are listed on the priorities substances list.
16.2	Terms & Definitions:	Please see page 5 of this Material Safety Data Sheet.
16.3	Disclaimer:	This Material Safety Data Sheet complies with U.S. OSHA's Hazard Communication Standard, 29 CFR §1910.1200 and Health Canada's Workplace Hazardous Materials Information System (WHMIS. To the best of Sakura Enterprises Inc.'s knowledge), the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either expressed or implied, are provided. The information contained herein relates only to the specific product. Contact the manufacturer for additional information.

16.4	Prepared for: Inflatable Technologies 2290 S. Lipan St. Denver, CO 80223 Phone: 303.922.3111	<b>Inflatable Technologies</b>  <a href="http://www.raftrepair.com">www.raftrepair.com</a>
16.5	Prepared by: Sakura Enterprises, Inc. 2290 S. Lipan St. Denver, CO 80223 Phone: 303.922.3111 Web: <a href="http://www.raftrepair.com">www.raftrepair.com</a>	

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Prepared according to the WHMIS, ANSI, ACC &amp; OSHA standards.

Revision 1.0

10/01/2005

## DEFINITION OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these that are commonly used include the following:

## GENERAL INFORMATION:

CAS No.	Chemical Abstract Service Number
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## EXPOSURE LIMITS IN AIR:

ACGIH	American Conference on Governmental Industrial Hygienists
TLV	Threshold Limit Value
OSHA	U.S. Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
IDLH	Immediately Dangerous to Life and Health

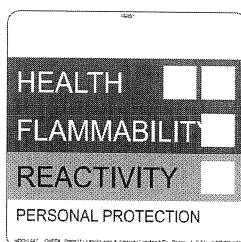
## FIRST AID MEASURES:

CPR	Cardiopulmonary resuscitation - method in which a person whose heart has stopped receives manual chest compressions and breathing to circulate blood and provide oxygen to the body.
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HAZARDOUS MATERIALS IDENTIFICATION  
SYSTEM: HMIS

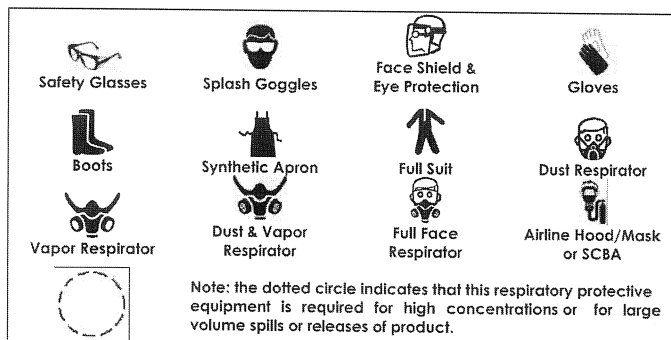
## HEALTH, FLAMMABILITY &amp; REACTIVITY RATINGS:

0	Minimal Hazard
1	Slight Hazard
2	Moderate Hazard
3	Severe Hazard
4	Extreme Hazard



## PERSONAL PROTECTION RATINGS:

A		G	
B		H	
C		I	
D		J	
E		K	
F		X	Consult your supervisor or S.O.P. for special handling directions.



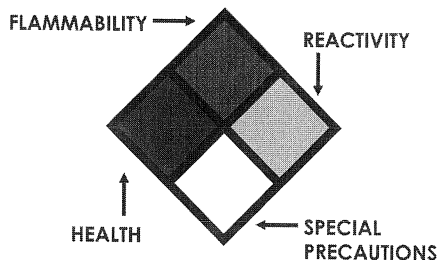
## OTHER STANDARD ABBREVIATIONS:

NA	Not Available
NR	No Results
NE	Not Established
ND	Not Determined
ML	Maximum Limit
SCBA	Self-Contained Breathing Apparatus

## NATIONAL FIRE PROTECTION ASSOCIATION: NFPA

## FLAMMABILITY LIMITS IN AIR:

Autoignition Temperature	Minimum temperature required to initiate combustion in air with no other source of ignition
LEL	Lower Explosive Limit - lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source
UEL	Upper Explosive Limit - highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source



## HAZARD RATINGS:

0	Minimal Hazard
1	Slight Hazard
2	Moderate Hazard
3	Severe Hazard
4	Extreme Hazard

ACD	Acidic
ALK	Alkaline
COR	Corrosive
-W	Use No Water
OX	Oxidizer

## TOXICOLOGICAL INFORMATION:

LD <sub>50</sub>	Lethal Dose (solids & liquids) which kills 50% of the exposed animals
LC <sub>50</sub>	Lethal concentration (gases) which kills 50% of the exposed animal
ppm	Concentration expressed in parts of material per million parts
TD <sub>10</sub>	Lowest dose to cause a symptom
TCLo	Lowest concentration to cause a symptom
TD <sub>10</sub> , LD <sub>10</sub> , & LD <sub>0</sub> or TC, TC <sub>0</sub> , LC <sub>10</sub> , & LC <sub>0</sub>	Lowest dose (or concentration) to cause lethal or toxic effects
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
RTECS	Registry of Toxic Effects of Chemical Substances
BCF	Bioconcentration Factor
TL <sub>m</sub>	Median threshold limit
log K <sub>ow</sub> or log K <sub>oc</sub>	Coefficient of Oil/Water Distribution

## REGULATORY INFORMATION:

WHMIS	Canadian Workplace Hazardous Material Information System
DOT	U.S. Department of Transportation
TC	Transport Canada
EPA	U.S. Environmental Protection Agency
DSL	Canadian Domestic Substance List
NDSL	Canadian Non-Domestic Substance List
TSCA	U.S. Toxic Substance Control Act