SAFETY DATA SHEET

Revision: 2.0 Date: 28/08/2015

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

MICRO MEASUREMENTS A VPG Brand

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1. SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product Name	M-COAT D
Chemical Name	Mixture
CAS No.	Mixture
EINECS No.	Mixture
REACH Registration No.	None assigned.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified Use(s)	Adhesives.
Uses Advised Against	For professional users only.

1.3 Details of the supplier of the safety data sheet

Company Identification	VISHAY MEASUREMENTS GROUP, INC. Post Office Box 27777 Raleigh, NC 27611 USA
Telephone	919-365-3800
Fax	919-365-3945
E-Mail (competent person)	mm.us@vishaypg.com

1.4 Emergency telephone number

1-800-424-9300
CHEMTREC

2. SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

2.1.1 GHS Classification

Flam. Liq. 2; H225
Asp. Tox. 1; H304
Skin Irrit. 2; H315
Eye Irrit. 2; H319
STOT SE 3; H336
Repr. 2; H361d
STOT RE 2; H373

2.2 Label elements

GHS Classification

Product Name: M-COAT D

Hazard Pictogram(s)

Signal Word(s): Danger

Contains: Toluene and Ethyl methyl ketone

Hazard Statement(s)

H225: Highly flammable liquid and vapour.
H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H336: May cause drowsiness or dizziness.
H361d: Suspected of damaging the unborn child.
H373: May cause damage to organs through prolonged or repeated exposure.

Precautionary Statement(s)

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260: Do not breathe vapour.

P280: Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P331: Do NOT induce vomiting.

2.3 Other hazards None.

3. SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances Not applicable

3.2 Mixtures

GHS Classification

Chemical identity of the substance	%W/W	CAS No.	EC No.	REACH Registration No.	Hazard Statement(s)
Toluene	< 50	108-88-3	203-625-9	None assigned.	Flam. Liq. 2; H225 Asp. Tox. 1; H304 Skin Irrit. 2; H315 STOT SE 3; H336 Repr. 2; H361 STOT RE 2; H373
Acrylic ester resin	25 - 30	-	-	None assigned.	Not classified
Titanium dioxide	15 - 20	13463-67-7	236-675-5	None assigned.	Not classified
Ethyl methyl ketone	< 20	78-93-3	201-159-0	None assigned.	Flam. Liq. 2; H225 Eye Irrit. 2; H319 STOT SE 3; H336 EUH066

H225: Highly flammable liquid and vapour. H304: May be fatal if swallowed and enters airways. H315: Causes skin irritation. H319: Causes serious eye irritation. H336: May cause drowsiness or dizziness. H361d: Suspected of damaging the unborn child. H373: May cause damage to organs through prolonged or repeated exposure. EUH066: Repeated exposure may cause skin dryness or cracking.

4. SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Self-protection of the first aider: Do not breathe vapour. Wear suitable protective clothing. Wear suitable respiratory protective equipment if exposure to high levels of material are likely. Do not use mouth-to-mouth resuscitation.

Inhalation: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Apply artificial respiration only if patient is not breathing or under medical supervision. Call a POISON CENTER or doctor/physician if you feel unwell. If exposed or concerned: Get medical attention/advice.

Skin Contact: IF ON SKIN: Wash with plenty of soap and water. Remove contaminated clothing and wash clothing before reuse. If skin irritation occurs, get medical advice/attention. If exposed or concerned: Get medical attention/advice.

Eye Contact: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Ingestion: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do NOT induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration into the lungs. Do not give milk or alcoholic beverages.

		Immediately call a POISON CENTER/doctor.
4.2	**Most important symptoms and effects, both acute and delayed**	Causes skin irritation. Causes eye irritation. May be fatal if swallowed and enters airways. Suspected of damaging the unborn child. May cause drowsiness or dizziness. May cause damage to organs through prolonged or repeated exposure.
4.3	**Indication of any immediate medical attention and special treatment needed**	Treat symptomatically. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. If Gastric Lavage is performed: Endotracheal control and/or esophagoscopy is recommended. Give a slurry of activated charcoal in water to drink. (240mL Water / 30 g Activated charcoal).

5. SECTION 5: FIRE-FIGHTING MEASURES

5.1	**Extinguishing media**	
	Suitable Extinguishing Media	As appropriate for surrounding fire. Extinguish preferably with foam, carbon dioxide or dry chemical.
	Unsuitable extinguishing Media	Do not use water jet. Direct water jet may spread the fire.
5.2	**Special hazards arising from the substance or mixture**	Highly flammable liquid and vapour. Combustion or thermal decomposition will evolve toxic and irritant vapours. Carbon monoxide, Carbon dioxide, Acrid smoke and Nitrogen oxides. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback.
5.3	**Advice for fire-fighters**	Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Do not breathe fumes. Keep containers cool by spraying with water if exposed to fire. Do not allow run-off from fire fighting to enter drains or water courses.

6. SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1	**Personal precautions, protective equipment and emergency procedures**	Shut off leaks if without risk. Eliminate all ignition sources if safe to do so. Ensure adequate ventilation. Do not breathe vapour. Avoid contact with skin, eyes or clothing. Wear suitable respiratory protection. Use personal protective equipment as required. See Section: 8.
6.2	**Environmental precautions**	Avoid release to the environment. Do not allow to enter drains, sewers or watercourses. Spillages or uncontrolled discharges into watercourses must be alerted to the Environment Agency or other appropriate regulatory body.
6.3	**Methods and material for containment and cleaning up**	Ensure suitable personal protection (including respiratory protection) during removal of spillages. Use non-sparking equipment when picking up flammable spill. Contain spillages. Adsorb spillages onto sand, earth or any suitable adsorbent material. Do NOT absorb in saw-dust or other combustible absorbents. Transfer to a container for disposal. Ventilate the area and wash spill site after material pick-up is complete. Dispose of this material and its container as hazardous waste.
6.4	**Reference to other sections**	See Section: 8, 13

7. SECTION 7: HANDLING AND STORAGE

7.1	**Precautions for safe handling**	Ensure adequate ventilation. Do not breathe vapour. In case of inadequate ventilation wear respiratory protection. Use personal protective equipment as required. See Section: 8. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharges. Use non-sparking hand tools and explosion proof electrical equipment.
7.2	**Conditions for safe storage, including any incompatibilities**	Ground/bond container and receiving equipment. Store in a cool/low-temperature, well-ventilated (dry) place. Keep container closed. Keep away from fire, sparks and heated surfaces - no smoking. Vapor space above stored liquid may be flammable/explosive unless blanketed with inert gas. Opened containers should be carefully resealed and stored in an upright position.

	Storage temperature	Store at temperatures not exceeding (°C): 27
	Storage life	Stable under normal conditions.
	Incompatible materials	Avoid contact with: Oxidizing agents.
7.3	**Specific end use(s)**	Adhesives.

8. SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Occupational Exposure Limits

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m³)	STEL (ppm)	STEL (mg/m³)	Note
Toluene	108-88-3	100	375	150 (1)	560 (1)	NIOSH
Toluene	108-88-3	200	-	300	-	OSHA
Titanium dioxide	13463-67-7		15 (2)			OSHA
Ethyl methyl ketone	78-93-3	200	590	300 (1)	885 (1)	NIOSH
Ethyl methyl ketone	78-93-3	200	590	-	-	OSHA

Note: OSHA 1910.1000 TABLE Z-1 and Z-2 / NIOSH
(1): 15 minute average value
(2): Total dust

8.1.2 Biological limit value — Not established.

8.1.3 PNECs and DNELs — Not established.

8.2 Exposure controls

8.2.1 Appropriate engineering controls — Ensure adequate ventilation or use appropriate containment. Atmospheric levels should be controlled in compliance with the occupational exposure limit. Use non-sparking ventilation systems, approved explosion-proof equipment, and intrinsically safe electrical systems. Guarantee that the eye flushing systems and safety showers are located close to the working place.

8.2.2 Individual protection measures, such as personal protective equipment (PPE) — General hygiene measures for the handling of chemicals are applicable. Avoid contact with skin, eyes or clothing. Do not breathe vapour. Wash hands before breaks and after work. Keep work clothes separately. Contaminated clothing should be thoroughly cleaned. Do not eat, drink or smoke at the work place.

Eye/face protection

Wear protective eye glasses for protection against liquid splashes. Wear eye protection with side protection (EN166).

Skin protection

Hand protection: Wear impervious gloves (EN374). Breakthrough time of the glove material: refer to the information provided by the gloves' producer. Recommended: Neoprene.

Body protection: Wear impervious protective clothing, including boots, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Wear anti-static clothing and shoes.

Respiratory protection

In case of inadequate ventilation wear respiratory protection. Open system(s): Wear suitable respiratory protective equipment. A suitable mask with filter type A (EN14387 or EN405) may be appropriate.

Thermal hazards — None

8.2.3 Environmental Exposure Controls — Avoid release to the environment.

9. SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	White, Liquid
Odour	Aromatic
Odour Threshold	Not established.
pH	Not established.
Melting Point/Freezing Point	Not established.
Initial boiling point and boiling range	100 °C
Flash point	-1 °C [Closed cup]
Evaporation Rate	1.9 (BuAc = 1)
Flammability (solid, gas)	Not applicable: Liquid
Upper/lower flammability or explosive limits	Flammable Limits (Lower) (%v/v): 1.6 Flammable Limits (Upper) (%v/v): 7.0
Vapour pressure	0.49 mmHg @ 20°C
Vapour density	3.8 (Air = 1)
Relative density	< 1 (Water = 1)
Solubility(ies)	Soluble in water.
Partition coefficient: n-octanol/water	Not established.
Auto-ignition temperature	Not established.
Decomposition Temperature	Not established.
Viscosity	Not established.
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.

9.2 Other information Volatile Organic Compound Content: 650 g/l

10. SECTION 10: STABILITY AND REACTIVITY

10.1	**Reactivity**	Stable under normal conditions.
10.2	**Chemical stability**	Stable under normal conditions.
10.3	**Possibility of hazardous reactions**	Highly flammable liquid and vapour. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback.
10.4	**Conditions to avoid**	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Protect from moisture.
10.5	**Incompatible materials**	Avoid contact with: Oxidizing agents.
10.6	**Hazardous decomposition product(s)**	May decompose in a fire giving off toxic fumes. Carbon monoxide, Carbon dioxide, Acrid smoke and Nitrogen oxides.

11. SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Ingestion	Based on available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: > 2000 mg/kg bw/day
Inhalation	Based on available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: > 20 mg/l
Skin Contact	Based on available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: > 2000 mg/kg bw/day
Skin corrosion/irritation	Skin Irrit. 2: Causes skin irritation.
Serious eye damage/irritation	Eye Irrit. 2: Causes serious eye irritation.
Respiratory or skin sensitization	Based on available data, the classification criteria are not met.
Germ cell mutagenicity	Based on available data, the classification criteria are not met.
Carcinogenicity	Based on available data, the classification criteria are not met.
Reproductive toxicity	Repr. 2: Suspected of damaging the unborn child.
STOT - single exposure	STOT SE 3: May cause drowsiness or dizziness.
STOT - repeated exposure	STOT RE 2: May cause damage to organs through prolonged or repeated exposure.

	Aspiration hazard	Asp. Tox. 1: May be fatal if swallowed and enters airways.
11.2	**Other information**	
	NTP Report on Carcinogens	Not listed
	IARC Monographs	Titanium dioxide: Group 2B – Possibly carcinogenic to humans
	NIOSH Occupational Carcinogens List	Titanium dioxide

12. SECTION 12: ECOLOGICAL INFORMATION

12.1	**Toxicity**	Based on available data, the classification criteria are not met. Estimated LC50 (96 hour) > 100 mg/l (Fish)
12.2	**Persistence and degradability**	No data for the mixture as a whole.
12.3	**Bioaccumulative potential**	The product has no potential for bioaccumulation.
12.4	**Mobility in soil**	The substance is predicted to have high mobility in soil. (Soluble in water.)
12.5	**Results of PBT and VPVB assessment**	Not classified as PBT or vPvB.
12.6	**Other adverse effects**	None known.

13. SECTION 13: DISPOSAL CONSIDERATIONS

13.1	**Waste treatment methods**	Do not release undiluted and unneutralised to the sewer. Dispose of this material and its container as hazardous waste. Dispose of contents in accordance with local, state or national legislation.
13.2	**Additional Information**	Containers of this material may be hazardous when empty since they retain product residue.

14. SECTION 14: TRANSPORT INFORMATION

		ADR/RID / IMDG / IATA/ICAO
14.1	**UN number**	1993
14.2	**UN proper shipping name**	FLAMMABLE LIQUID, N.O.S (Toluene and Ethyl methyl ketone)
14.3	**Transport hazard class(es)**	3
14.4	**Packing group**	II
14.5	**Environmental hazards**	Not classified as a Marine Pollutant./ Environmentally hazardous substance
14.6	**Special precautions for user**	See Section: 2
14.7	**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
14.8	**Additional Information**	None.

15. SECTION 15: REGULATORY INFORMATION

15.1	**Safety, health and environmental regulations/legislation specific for the substance or mixture**	
15.1.1	**National regulations**	
	OSHA Occupational Safety and Health Standards	None.
15.1.2	**European regulations**	
	Substance(s) of Very High Concern (SVHCs)	None.
	Authorisations and/or Restrictions On Use	For professional users only. REACH: ANNEX XVII restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles. Toluene: Entry number: 48.
	Wassergefährdungsklasse (Germany)	Water hazard class: 2
15.2	**Chemical Safety Assessment**	Not available.

16. SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: 1-16.

References: Existing Safety Data Sheet (SDS), Harmonised Classification(s) for Toluene (CAS No. 108-88-3) and Ethyl methyl ketone (CAS No. 78-93-3), and Existing ECHA registration(s) for Toluene (CAS No. 108-88-3), Titanium Dioxide (CAS No. 13463-67-7) and Ethyl methyl ketone (CAS No. 78-93-3).

GHS Classification of the substance or mixture	Classification Procedure
Flam. Liq. 2; H225	Flash Point [Closed cup] Test Result/ Boiling Point (°C)
Asp. Tox. 1; H304	Estimated Viscosity
Skin Irrit. 2; H315	Threshold Calculation
Eye Irrit. 2; H319	Threshold Calculation
STOT SE 3; H336	Threshold Calculation
Repr. 2; H361d	Threshold Calculation
STOT RE 2; H373	Threshold Calculation

LEGEND

LTEL	Long Term Exposure Limit
STEL	Short Term Exposure Limit
DNEL	Derived No Effect Level
PNEC	Predicted No Effect Concentration
PBT	PBT: Persistent, Bioaccumulative and Toxic
vPvB	vPvT: very Persistent and very Toxic
NTP	National Toxicology Program
IARC	International Agency for Research on Cancer
OSHA	The Occupational Safety & Health Administration
NIOSH	National Institute for Occupational Safety and Health

Training advice: Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.

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Annex to the extended Safety Data Sheet (eSDS)

No information available.