Conforms to ANSI Z400.1-2004 Standard

Material Safety Data Sheet

CR7 Guthega Yellow

1. Product and company identification

Product name : CR7 Guthega Yellow

Material uses : Inkjet printing.

Supplier/Manufacturer : Zamtec Ltd.
8 Fitzwilliam Square
Dublin 2, Ireland
Tel: +1-858-798-3000
Fax: +1-858-798-3044
Email: msds@memjet.com
Web Site: www.memjet.com

MSDS authored by : KMK Regulatory Services Inc.

In case of emergency : CHEMTREC, U.S. : 1-800-424-9300 International: +1-703-527-3887

2. Hazards identification

Emergency overview

Physical state : Liquid. [Semi-opaque.]

Color : Yellow.

Signal word : WARNING!

Hazard statements : HARMFUL IF SWALLOWED. CAUSES EYE AND SKIN IRRITATION. MAY CAUSE RESPIRATORY TRACT IRRITATION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE.

Precautionary measures : Do not breathe vapor or mist. Do not ingest. Do not get in eyes. Avoid contact with skin and clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Potential acute health effects

Inhalation : Slightly irritating to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Ingestion : Harmful if swallowed. Irritating to mouth, throat and stomach.

Skin : Irritating to skin.

Eyes : Severely irritating to eyes. Risk of serious damage to eyes.

Potential chronic health effects

Chronic effects : Contains material that can cause target organ damage.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Target organs : Contains material which may cause damage to the following organs: kidneys, spleen, upper respiratory tract, skin, eyes, central nervous system (CNS), stomach.

Over-exposure signs/symptoms

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing

Ingestion : No specific data.

2. Hazards identification

Skin : Adverse symptoms may include the following:
irritation
redness

Eyes : Adverse symptoms may include the following:
pain or irritation
watering
redness

Medical conditions aggravated by over-exposure : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (Section 11)

3. Composition/information on ingredients

United States

Name	CAS number	%
Ethylene glycol	107-21-1	5 - 10
2-Pyrrolidone	616-45-5	5 - 10
Proprietary Yellow dye	-	1 - 5
Glycerol	56-81-5	1 - 5
Ethoxylated-2,4,7,9-tetramethyl-5-decyne-4,7-diol	9014-85-1	0.1 - 1

Canada

Name	CAS number	%
Ethylene glycol	107-21-1	5 - 10
2-Pyrrolidone	616-45-5	5 - 10
Proprietary Yellow dye	-	1 - 5
Glycerol	56-81-5	1 - 5
Ethoxylated-2,4,7,9-tetramethyl-5-decyne-4,7-diol	9014-85-1	0.1 - 1

Mexico

					Classification			
Name	CAS number	UN number	%	IDLH	H	F	R	Special
Ethylene glycol	107-21-1	Not regulated.	5 - 10	-	1	1	0	-
2-Pyrrolidone	616-45-5	Not regulated.	5 - 10	-	2	1	0	-
Ethoxylated-2,4,7,9-tetramethyl-5-decyne-4,7-diol	9014-85-1	Not regulated.	0.1 - 1	-	1	1	0	-
Glycerol	56-81-5	Not regulated.	1 - 5	-	0	1	0	-

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

Eye contact : Immediately flush eyes with plenty of water for at least 20 minutes, occasionally lifting the upper and lower eyelids.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 20 minutes. Get medical attention if symptoms occur.

Inhalation : Move exposed person to fresh air. Get medical attention if symptoms occur.

Ingestion : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Call medical doctor or poison control center immediately.

Protection of first-aiders : If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

Notes to physician : Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5. Fire-fighting measures

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Specific hazards arising from the chemical : This material is harmful to aquatic life. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

Personal precautions : Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

Small spill : Stop leak if without risk. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7. Handling and storage

Handling : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Empty containers retain product residue and can be hazardous.

Storage : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

United States

Ingredient	Exposure limits
Ethylene glycol	**ACGIH TLV (United States, 2/2010).** C: 100 mg/m³ Form: Aerosol. **OSHA PEL 1989 (United States, 3/1989).** CEIL: 125 mg/m³ CEIL: 50 ppm
Glycerol	**ACGIH TLV (United States, 2/2010).** TWA: 10 mg/m³ 8 hour(s). Form: Inhalable fraction. **OSHA PEL (United States, 11/2006).** TWA: 5 mg/m³ 8 hour(s). Form: Respirable fraction TWA: 15 mg/m³ 8 hour(s). Form: Total dust

Canada

Occupational exposure limits		TWA (8 hours)			STEL (15 mins)			Ceiling			
Ingredient	List name	ppm	mg/m³	Other	ppm	mg/m³	Other	ppm	mg/m³	Other	Notations
Ethylene glycol	US ACGIH 2/2010	-	-	-	-	-	-	-	100	-	[a]
	AB 4/2009	-	-	-	-	-	-	-	100	-	[3] [a]
	BC 10/2009	-	-	-	-	-	-	-	100	-	[a]
		-	10	-	-	20	-	-	-	-	[b]
		-	-	-	-	-	-	50	-	-	[c]
	ON 7/2010	-	-	-	-	-	-	-	100	-	[a]
	QC 6/2008	-	-	-	50	127	-	-	-	-	[d]
Glycerol	US ACGIH 2/2010	-	10	-	-	-	-	-	-	-	[e]
	AB 4/2009	-	10	-	-	-	-	-	-	-	[3] [f]
	BC 10/2009	-	10	-	-	-	-	-	-	-	[f]
		-	3	-	-	-	-	-	-	-	[g]
	ON 7/2010	-	10	-	-	-	-	-	-	-	[e]
	QC 6/2008	-	10	-	-	-	-	-	-	-	[f]

[3]Skin sensitization
Form: [a]Aerosol. [b]Particulate [c]Vapour [d]vapour and mist [e]Inhalable fraction. [f]Mist [g]Respirable mist

Mexico

Occupational exposure limits

Ingredient	Exposure limits
Ethylene glycol	**NOM-010-STPS (Mexico, 9/2000).** LMPE-Pico: 100 mg/m³
Glycerol	**NOM-010-STPS (Mexico, 9/2000).** LMPE-PPT: 10 mg/m³ 8 hour(s). Form: mist

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures : Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures : No special ventilation requirements. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures : Ensure that eyewash stations and safety showers are close to the workstation location. Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period.

Personal protection

Respiratory : Not required under normal conditions of use. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Ensure an MSHA/NIOSH-approved respirator or equivalent is used.

Hands : Use gloves appropriate for work or task being performed. Recommended: Natural rubber (latex).

Eyes : Safety eyewear should be used when there is a likelihood of exposure. Recommended: Safety glasses with side shields.

8. Exposure controls/personal protection

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: Lab coat.

Environmental exposure controls : In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and chemical properties

Physical state : Liquid. [Semi-opaque.]

Flash point : Closed cup: >93.3°C (>199.9°F) [Pensky-Martens.]

Color : Yellow.

pH : 6.5 to 7.5

Boiling/condensation point : >90°C (>194°F)

Specific gravity : 1 to 1.1 g/cm^3

Vapor density : >1 [Air = 1]

Viscosity : Dynamic: 1.4 to 1.9 mPa·s (1.4 to 1.9 cP)

Solubility : Soluble

10. Stability and reactivity

Chemical stability : The product is stable.

Conditions to avoid : No specific data.

Incompatible materials : Reactive or incompatible with the following materials: oxidizing materials.

Hazardous decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

11. Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Ethylene glycol	LD50 Oral	Rat	4700 mg/kg	-
2-Pyrrolidone	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
Glycerol	LD50 Oral	Rat	12600 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Ethylene glycol	Eyes - Mild irritant	Rabbit	-	-	-
	Eyes - Moderate irritant	Rabbit	-	-	-
	Skin - Mild irritant	Rabbit	-	-	-
Glycerol	Eyes - Mild irritant	Rabbit	-	-	-
	Skin - Mild irritant	Rabbit	-	-	-

Carcinogenicity

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Ethylene glycol	A4	-	-	None.	-	-

IDLH : Not available.

Synergistic products : Not available.

12. Ecological information

Ecotoxicity : This material is harmful to aquatic life.

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Ethylene glycol	Acute LC50 >100000 ug/L Marine water	Crustaceans - Crangon crangon - Adult	48 hours
	Acute LC50 6900000 to 8800000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia - Neonate	48 hours
	Acute LC50 8050000 ug/L Fresh water	Fish - Pimephales promelas - <=7 days	96 hours
	Chronic NOEC 11610000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia - <=24 hours	48 hours
	Chronic NOEC 6090000 ug/L Fresh water	Fish - Pimephales promelas - <=7 days	96 hours
2-Pyrrolidone	Acute EC50 13210 ug/L Fresh water	Daphnia - Daphnia pulex - Neonate - <24 hours	48 hours
Proprietary Yellow dye	EC50 >100 mg/l	Daphnia	48 hours
	LC50 >100 mg/l	Fish	96 hours
Glycerol	Acute LC50 54 to 57 ml/L Fresh water	Fish - Oncorhynchus mykiss - 0.9 g	96 hours

Persistence/degradability

Product/ingredient name	Test	Result	Dose	Inoculum
Proprietary Yellow dye	-	<5 % - Not readily - 28 days	-	-

13. Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14. Transport information

International transport regulations

DOT / TDG / Mexico / IMDG / IATA : Not regulated by any transport mode.

15. Regulatory information

United States

HCS Classification : Toxic material
Irritating material
Target organ effects

U.S. Federal regulations : **United States inventory (TSCA 8b)**: All components listed.

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Ethylene glycol; 2-Pyrrolidone; Glycerol
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Ethylene glycol: Immediate (acute) health hazard, Delayed (chronic) health hazard; 2-Pyrrolidone: Immediate (acute) health hazard, Delayed (chronic) health hazard; Glycerol: Immediate (acute) health hazard, Delayed (chronic) health hazard

Clean Water Act (CWA) 311: Sodium hydroxide

15. Regulatory information

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) : Listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 313

	Product name	CAS number	Concentration
Form R - Reporting requirements	Ethylene glycol	107-21-1	5 - 10
Supplier notification	Ethylene glycol	107-21-1	5 - 10

SARA 313 notifications must not be detached from the 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 regulations

Massachusetts : The following components are listed: Ethylene glycol; 2-Pyrrolidone; Glycerol

New York : The following components are listed: Ethylene glycol

New Jersey : The following components are listed: Ethylene glycol; Glycerol

Pennsylvania : The following components are listed: Ethylene glycol; 2-Pyrrolidone; Glycerol

California Prop. 65

No products were found.

Canada

WHMIS (Canada) : Class D-1B: Material causing immediate and serious toxic effects (Toxic).
Class D-2B: Material causing other toxic effects (Toxic).

Canadian lists

Canadian NPRI : The following components are listed: Ethylene glycol

CEPA Toxic substances : None of the components are listed.

Canada inventory : All components listed.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Mexico

Classification :

International regulations

15. Regulatory information

International lists : **Australia inventory (AICS)**: All components listed.
China inventory (IECSC): All components listed.
Japan inventory: Not determined.
Korea inventory: All components listed.
New Zealand Inventory of Chemicals (NZIoC): All components listed.
Philippines inventory (PICCS): All components listed.

16. Other information

Label requirements : HARMFUL IF SWALLOWED. CAUSES EYE AND SKIN IRRITATION. MAY CAUSE RESPIRATORY TRACT IRRITATION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE.

Hazardous Material Information System (U.S.A.) : **Health :** 2 * **Flammability :** 1 **Physical hazards :** 0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

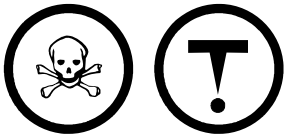
The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.) : **Health :** 2 **Flammability :** 1 **Instability :** 0

Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Canada

WHMIS (Canada) :



History

Date of issue : 11/15/2010

Version : 1

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.