

1. IDENTIFICATION

Catalog Number / Product Name: 31030 / 605 Benzidines Calibration Mix
Company: Restek Corporation
Address: 110 Benner Circle
Bellefonte, Pa. 16823
Phone#: 814-353-1300
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Revision Number: 9
Intended use: For Laboratory use only

2. HAZARD(S) IDENTIFICATION**Emergency Overview:****GHS Hazard Symbols:**

GHS Classification: Skin Sensitisation Category 1
Carcinogenicity Category 1A
Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 1
Flammable Liquid Category 2
Acute Toxicity - Inhalation Dust / Mist Category 3
Acute Toxicity - Dermal Category 3
Acute Toxicity - Oral Category 3

GHS Signal Word: Danger

GHS Hazard: Highly flammable liquid and vapour.
Toxic if swallowed, in contact with skin or if inhaled.
May cause an allergic skin reaction.
May cause cancer.
Causes damage to organs.

GHS Precautions:

Safety Precautions: Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilation and lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dust/fume/gas/mist/vapours/spray.
Wash hands and skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves/protective clothing/eye protection/face protection.

First Aid Measures: IF SWALLOWED: Immediately call a POISON CENTER/doctor/....
IF ON SKIN: Wash with plenty of soap and water.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 Specific treatment see section 4.
 Rinse mouth.
 If skin irritation or rash occurs: Get medical advice/attention.
 Take off immediately all contaminated clothing and wash it before reuse.
 In case of fire: Use extinguishing media in section 5 for extinction.

Storage: Store in a well-ventilated place. Keep container tightly closed.
 Store in a well-ventilated place. Keep cool.
 Store locked up.

Disposal: Dispose of contents/container according to section 13 of the SDS.

Single Exposure Target Organs: Specific target organ toxicity - Single exposure - STOT SE 1: H370 Causes damage to organs. (C >= 10 %; No information to prove exclusion of certain routes of exposure); Specific target organ toxicity - Single exposure - STOT SE 2: H371 May cause damage to organs. (3 % <= C <10 %; Concentration limits for acute toxicity cannot be translated into GHS from the DSD especially when minimum classifications are given)

Repeated Exposure Target Organs: No data available

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
methanol	67-56-1	200-659-6	99.6
3,3'-Dichlorobenzidine	91-94-1	202-109-0	0.2
benzidine	92-87-5	202-199-1	0.2

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately

Eyes: Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.

Skin Contact: Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.

Ingestion: Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

5. FIRE- FIGHTING MEASURES

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water may be ineffective but water spray can be used to extinguish a fire if swept across the base of the flames. Water can absorb heat and keep exposed material from being damaged by fire.

Fire and/or Explosion Hazards: Vapors may be ignited by sparks, flames or other sources of ignition if material is above the flash point giving rise to a fire (Class B). Vapors are heavier than air and may travel to a source of ignition and flash back.

Fire Fighting Methods and Protection: Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.

Hazardous Combustion Products: Hydrogen chloride, Nitrogen containing gases, Toxic fumes., Toxic gases, Carbon dioxide, Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment: Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure

Methods for Clean-up:

limits.

Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.

7. HANDLING AND STORAGE

Handling Technical Measures and Precautions: Toxic or severely irritating material. Avoid contacting and avoid breathing the material. Use only in a well ventilated area. Use spark-proof tools and explosion-proof equipment As with all chemicals, good industrial hygiene practices should be followed when handling this material. Wash thoroughly after handling Avoid contact with material. Minimize dust generation and accumulation Remove contaminated clothing and wash before reuse

Storage Technical Measures and Conditions: Store in a cool dry ventilated location. Isolate from incompatible materials and conditions. Keep container(s) closed. Keep away from sources of ignition Keep container closed when not in use Keep away from heat, sparks, and flame Keep away from food and drinking water.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION**United States:**

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
methanol	67-56-1	6000 ppm IDLH	250 ppm STEL	200 ppm TWA	200 ppm TWA; 260 mg/m3 TWA
3,3'-Dichlorobenzidine	91-94-1	ND	None Known	No TLV	No PEL established
benzidine	92-87-5	Not established	None Known	Not established	No data available

Personal Protection:**Engineering Measures:**

Local exhaust ventilation or other engineering controls are normally required when handling or using this product to avoid overexposure. Engineering controls must be designed to meet the OSHA chemical specific standard in 29 CFR 1910. Engineering controls must be designed to control vapor concentrations to below levels published in 29 CFR 1910.1000.

Respiratory Protection:

Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms. Follow a respiratory protection program that meets 29 CFR 1910.134 and ANSI Z88.2 requirements whenever work place conditions warrant the use of a respirator. Wear a NIOSH approved respirator if any exposure is possible. If an exposure limit is exceeded or if an operator is experiencing symptoms of inhalation overexposure as explained in Section 3, provide respiratory protection.

Eye Protection:

Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses. Wear goggles and a Face shield

Skin Protection:

Avoid skin contact by wearing chemically resistant gloves, an apron and other protective equipment depending upon conditions of use. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	No data available
Odor:	Mild
Physical State:	Liquid
pH:	Not applicable
Vapor Pressure:	No data available
Vapor Density:	1.1 (air = 1)
Boiling Point (°C):	>=250 °C Boiling Point (with decomposition) 401 °C at 1013.25 hPa 64.7 °C at 760 mmHg (HSDB)

Melting Point (°C): -98 °C
Flash Point (°F): 52
Flammability: Highly Flammable
Upper Flammable/Explosive Limit, % in air: 36
Lower Flammable/Explosive Limit, % in air: 6
Autoignition Temperature (°C): 464 deg C
Decomposition Temperature (°C): No data available
Specific Gravity: 0.791 - 0.792 g/cm3 at 20 °C
Evaporation Rate: No data available
Odor Threshold: ND
Solubility: Moderate; 50-99%
Partition Coefficient: n-octanol in water: No data available
VOC % by weight: 0
Molecular Weight: 32.04

10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions.
Conditions to Avoid: None known. Contamination
Materials to Avoid / Chemical Incompatibility: Strong oxidizing agents
Hazardous Decomposition Products: Carbon dioxide Carbon monoxide Hydrogen chloride
 Nitrogen containing gases Toxic fumes. Toxic gases

11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, Skin Contact, Eye Contact, Ingestion
Target Organs Potentially Affected By Exposure: Eyes, Central nervous system stimulation, Skin, GI Tract, Respiratory Tract
Chemical Interactions That Change Toxicity: None Known

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation Irritation: Can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.
Inhalation Toxicity: Harmful! Can cause systemic damage (see "Target Organs")Methanol can cause central nervous system depression and overexposure can cause damage to the optic nerve resulting in visual impairment or blindness.
Skin Contact: Can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.
Eye Contact: Can cause moderate irritation, tearing and reddening, but not likely to permanently injure eye tissue.
Ingestion Irritation: Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea.Highly toxic and may be fatal if swallowed.
Ingestion Toxicity: Toxic if swallowed. May cause target organ failure and/or death.May be fatal if swallowed.

Long-Term (Chronic) Health Effects:

Carcinogenicity: Contains a probable or known human carcinogen.
Reproductive and Developmental Toxicity: No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
Inhalation: Upon prolonged and/or repeated exposure, can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.Harmful! Can cause systemic damage upon prolonged and/or repeated exposure (see "Target Organs")
Skin Contact: Upon prolonged or repeated contact, can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.
Skin Absorption: Upon prolonged or repeated exposure, harmful if absorbed through the skin. May cause minor systemic damage.
Ingestion: Toxic if swallowed. May cause target organ failure and/or death.

Component Toxicological Data:

NIOSH:

Chemical Name	CAS No.	LD50/LC50
3,3'-Dichlorobenzidine	91-94-1	No data available
No data available		

Benzidine	92-87-5	Oral LD50 Rat 309 mg/kg
Methanol	67-56-1	Inhalation LC50 Rat 22500 ppm 8 h

Component Carcinogenic Data:

OSHA:

Chemical Name	CAS No.	
3,3'-Dichlorobenzidine	91-94-1	Cancer suspect agent (see 29 CFR 1910.1007) (includes salts of 3,3'-Dichlorobenzidine); {OSHA - 29 CFR 1910 Specifically Regulated Chemicals}
Benzidine	92-87-5	Present

ACGIH:

Chemical Name	CAS No.	
3,3'-Dichlorobenzidine	91-94-1	A3 - Animal Carcinogen
Benzidine	92-87-5	A1 - Confirmed Human Carcinogen

NIOSH:

Chemical Name	CAS No.	
3,3'-Dichlorobenzidine	91-94-1	potential occupational carcinogen
Benzidine	92-87-5	potential occupational carcinogen

NTP:

Chemical Name	CAS No.	
Benzidine	92-87-5	Known Human Carcinogen (listed under Benzidine and dyes metabolized to benzidine)

IARC:

Chemical Name	CAS No.	Group No.
Monograph 100F [2012]; Monograph 99 [2010]; Supplement 7 [1987]; Monograph 29 [1982]	92-87-5	Group 1
Monograph 29, Supplement 7; 1987	91-94-1	Group 2B

12. ECOLOGICAL INFORMATION

Overview:	Moderate ecological hazard. This product may be dangerous to plants and/or wildlife.
Mobility:	No data
Persistence:	No data
Bioaccumulation:	No data
Degradability:	Biodegrades slowly.
Ecological Toxicity Data:	No data available

13. DISPOSAL CONSIDERATIONS

Waste Description of Spent Product:	Spent or discarded material is a hazardous waste. Mixing spent or discarded material with other materials may render the mixture hazardous. Perform a hazardous waste determination on mixtures.
Disposal Methods:	Dispose of by incineration following Federal, State, Local, or Provincial regulations.
Waste Disposal of Packaging:	Comply with all Local, State, Federal, and Provincial Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:	
DOT Proper Shipping Name:	Methanol
UN Number:	UN1230
Hazard Class:	3
Packing Group:	II

International:	
IATA Proper Shipping Name:	Methanol
UN Number:	UN1230
Hazard Class:	3(6.1)

Marine Pollutant: No

Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant
No data available			

15. REGULATORY INFORMATION**United States:**

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
methanol	67-56-1	X	X	-	X
3,3'-Dichlorobenzidine benzidine	91-94-1	X	X	-	X
	92-87-5	X	X	-	X

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
3,3''-Dichlorobenzidine 3,3'-Dichlorobenzidine	91-94-1	Prop 65 Cancer
Benzidine	92-87-5	Prop 65 Cancer
Methanol	67-56-1	Prop 65 Develop Tox

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
methanol	67-56-1	X	X	X	X
3,3'-Dichlorobenzidine	91-94-1	X	X	X	X
benzidine	92-87-5	X	X	X	X

16. OTHER INFORMATION**Prior Version Date:** 11/23/16**Other Information:** Any changes to the SDS compared to previous versions are marked by a vertical line in front of the concerned paragraph.**References:** No data available

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