




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

- 1.1 Product identifier**
 GHS Product Identifier **TDP - HL Etching Solution for TDP System**
 Product Code **TDP - HL**
 Chemical Name **Mixture**
 Trade name **TDP - HL Etching Solution for TDP System**
 CAS No. **Mixture**
 EINECS No. **Mixture**
 REACH Registration No. **Not available**
- 1.2 Relevant identified uses of the substance or mixture and uses advised against**
 Identified use(s) **Users are recommended to seek further advice.**
 Uses advised against **Users are recommended to seek further advice.**
- 1.3 Supplier's details**
 Company Identification **Mitsubishi Imaging (MPM), Inc.**
 Address **555 Theodore Fremd Avenue, Rye, NY 10580 USA**
 Telephone **(914) 925-3200**
 E-Mail (competent person)
- 1.4 Emergency telephone number – ChemTrec**
Emergency Phone No. (800) 424-9300 (US/Canada), +01 (703) 527-3887 (Elsewhere)

SECTION 2: HAZARDS IDENTIFICATION

- 2.1 Classification of the substance or mixture**
2.1.1 Regulation (EC) No. 1272/2008 (CLP) –Skin Irritation 2 (3.2/2);Eye Irritation 2 (3.3/2), Specific target organ toxicity — single exposure (3.8/3)
2.1.2 Directive 67/548/EEC & Directive 1999/45/EC –Irritant
- 2.2 Label elements**
2.2.1 Label elements According to Regulation (EC) No. 1272/2008 (CLP)
 GHS Product Identifier (EU)
- Hazard pictogram(s) 
- Signal word(s) **Warning**
 Hazard statement(s) **H315: Causes skin irritation.
 H319: Causes serious eye irritation
 H335: May cause respiratory irritation.**
- Precautionary Statement(s) **P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
 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.**
- 2.2.2 Label elements According to Directive 67/548/EEC & Directive 1999/45/EC**
 Hazard Symbol 
- Risk Phrases **R36/37/38: Irritating to eyes, respiratory system and skin.**
- Safety Phrases **S25: Avoid contact with eyes.
 S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
 S36/37/39: Wear suitable protective clothing, gloves and eye/face protection.
 S46 If swallowed, seek medical advice immediately and show this container or label**

2.3 Other hazards Hazardous under OSHA Hazard Communication Standard (USA)

HMIS: Health-1, Flammability- 0 Reactivity – 0
 GHS Classification (USA): Irritant (Eyes/Skin)
 H315: Causes skin irritation
 H319: Causes serious eye irritation



WHMIS Classification (Canada): D2B - Toxic material causing other toxic effects. Irritant.

H315: Causes skin irritation.
 H319: Causes serious eye irritation
 H335: May cause respiratory irritation.



2.4 Additional Information

Potential Health Effects

Inhalation	May cause mild irritation
Eye Contact	Causes moderate eye irritation.
Skin Contact	May cause skin irritation.
Ingestion	Product is a gastro-intestinal irritant.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

EC Classification No. 1272/2008/EC

Hazardous ingredient(s)	% W/W	CAS No.	EC No.	REACH Registration No.	Hazard pictogram(s) and Hazard statement(s)
Sodium Hydroxide	0.1-1.0	1310-73-2	215-185-5	NR	3.2/1A, H314
Succinic Acid	0.1-1.0	110-15-6	203-740-4	NR	3.2/2, 3.3/1, 3.8/3; H315, H318, H335
Glucono-1,5-lactone	0.5-2.5	90-80-2	202-016-5	NR	None None
Amorphous silica dispersion	5.0-10.0	7631-86-9	231-545-4	NR	3.3/2,3.8/3; H319, H335
Trehalose	1.0-5.0	6138-23-4	Unlisted	NR	None None
Magnesium nitrate hexahydrate	0.5-2.5	13446-18-9	233-826-7	NR	3.3/2; H319

EC Classification No. 67/548/EEC

Hazardous ingredient(s)	% W/W	CAS No.	EC No.	REACH Registration No.	EC Classification and Risk Phrases
Sodium Hydroxide	0.1-1.0	1310-73-2	215-185-5	NR	Xi, R36/38
Succinic Acid	0.1-1.0	110-15-6	203-740-4	NR	Xi, R37/38, R41
Glucono-1,5-lactone	0.5-2.5	90-80-2	202-016-5	NR	None None
Amorphous silica dispersion	5.0-10.0	7631-86-9	231-545-4	NR	Xi, R36/37
Trehalose	1.0-5.0	6138-23-4	Unlisted	NR	None None
Magnesium nitrate hexahydrate	0.5-2.5	13446-18-9	233-826-7	NR	Xi, R36

3.3 Additional Information

- For full text of H phrases see section 16. For full text of R phrases see section 16. Non-Hazardous ingredients are not listed and make up the balance of the product.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation	Remove patient from exposure. Keep patient at rest and give oxygen if breathing difficult. If symptoms develop, obtain medical attention.
Skin Contact	Wash affected skin with soap and water. If symptoms develop, obtain medical attention.
Eye Contact	Remove contact lenses. Irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 15 minutes. If symptoms develop, obtain medical attention.
Ingestion	Do not induce vomiting. Obtain immediate medical attention.

- 4.2 Most important symptoms and effects, both acute and delayed** **Acute:** Liquid product is irritant to eyes and skin.
Delayed and chronic effects: Similar to acute exposures.
- 4.3 Indication of the immediate medical attention and special treatment needed** Treat symptomatically; ingestions may require patient monitoring to include diagnostic testing.

SECTION 5: FIRE-FIGHTING MEASURES

- 5.1 Extinguishing media**
Suitable Extinguishing Media Non-combustible.
Unsuitable Extinguishing Media None.
- 5.2 Special hazards arising from the substance or mixture** None.
- 5.3 Advice for fire-fighters** A self contained breathing apparatus and suitable protective clothing should be worn in fire conditions.

SECTION 6: ACCIDENTAL RELEASE MEASURES

- 6.1 Personal precautions, protective equipment and emergency procedures** Ensure full personal protection (including respiratory protection) during removal of spillages.
- 6.2 Environmental precautions** Do not let product enter drains.
- 6.3 Methods and material for containment and cleaning up** Soak up with inert absorbent material and dispose accordingly. Keep in suitable, closed containers for disposal.
- 6.4 Reference to other sections** See Also Section 7, 8, 13.
- 6.5 Additional Information** None

SECTION 7: HANDLING AND STORAGE

- 7.1 Precautions for safe handling** Wear suitable protective clothing and eye/face protection. Avoid contact with eyes. Avoid ingestion.
- 7.2 Conditions for safe storage, including any incompatibilities**
Storage Temperature Ambient temperatures.
Storage Life Not available.
Incompatible materials Water-reactive materials.
- 7.3 Specific end use(s)** Consult the supplier.

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/m ³)	STEL (ppm)	STEL (mg/m ³)	Note:
Sodium Hydroxide	1310-73-2	NE	2 Ceiling	NE	NE	OSHA
		NE	2 Ceiling	NE	NE	ACGIH
Succinic Acid	110-15-6	NE	NE	NE	NE	OSHA
		NE	NE	NE	NE	ACGIH
Glucono-1,5-lactone	90-80-2	NE	NE	NE	NE	OSHA
		NE	NE	NE	NE	ACGIH
Amorphous silica dispersion	7631-86-9	NE	NE	NE	NE	OSHA
		NE	NE	NE	NE	ACGIH
Trehalose	6138-23-4	NE	NE	NE	NE	OSHA
		NE	NE	NE	NE	ACGIH
Magnesium nitrate hexahydrate	13446-18-9	NE	NE	NE	NE	OSHA
		NE	NE	NE	NE	ACGIH

8.1.2 Biological limit value

Biological limit values are not available for this product.

8.1.3 PNECs and DNELs

No PNECs and/or DNELs are available for this product.

8.2 Exposure controls

8.2.1 Appropriate engineering controls Guarantee sufficient ventilation during and after use, in order to prevent vapour accumulation.

8.2.2 Personal protection equipment

Eye/face protection Safety spectacles.



Skin protection (Hand protection/ Other) Plastic or synthetic rubber gloves. Wear chemical resistant apron.



Respiratory protection Wear suitable respiratory protective equipment if exposure to levels above the occupational exposure limit is likely.

Thermal hazards None

8.2.3 Environmental Exposure Controls Adequate ventilation must be used.

HMIS Personal Protective Equipment Letter Designation C

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES
9.1 Information on basic physical and chemical properties

Appearance	Clear Liquid	Colour	Colorless
Odour	Slight Lactone	Odour Threshold (ppm)	Not available
Melting Point (°C) / Freezing Point (°C)	Not available	Boiling point/boiling range (°C):	NR
Flash Point (°C)	Not Flammable	Explosive limit ranges	Not available
Auto Ignition Temperature (°C)	Not available	Decomposition Temperature (°C)	Not available
Explosive properties	Not available	Oxidising properties	Not available
Flammability (solid, gas)	Not available	pH (Value)	5.2± 0.3 @ 25°C
Evaporation rate	NA	Vapour Pressure (mm Hg)	17mm Hg @20°C
Vapour Density (Air=1)	NA	Density (g/ml)	1.063 ± 0.005@ 25°C
Solubility (Water)	Complete	Solubility (Other)	Not available
Partition Coefficient (n-Octanol/water)	Not available	Viscosity (mPa.s)	Not Specified

9.2 Other information Volatile Organic Compound (VOC) Content: 150 g / L per EPA Method 24 (does not include water). VOC weight %: <20% (calc) per California CARB methodology.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity	None
10.2 Chemical stability	Stable under normal conditions.
10.3 Possibility of hazardous reactions	Can react violently if in contact with - strong acids, oxidizers
10.4 Conditions to avoid	Extreme temperatures
10.5 Incompatible materials	Strong acids, oxidizers, strong alkalis.
10.6 Hazardous Decomposition Product(s)	Oxides of carbon, Silicon oxides, Magnesium oxide, hydrocarbons, fumes, smoke.

SECTION 11: TOXICOLOGICAL INFORMATION

Ingredient	CAS No.	LD ₅₀ (Oral, Rat)	LC ₅₀ (Inhalation, Rat)
Sodium Hydroxide	1310-73-2	No Data	No Data
Succinic Acid	110-15-6	2,260 mg/kg	No Data
Glucono-1,5-lactone	90-80-2	No Data	No Data
Amorphous silica dispersion	7631-86-9	No Data	No Data
Trehalose	6138-23-4	4600 mg/kg	No Data
Magnesium nitrate hexahydrate	13446-18-9	5440 mg/kg	No Data

11.1 Information on toxicological effects**11.1.2 Mixtures**

Acute toxicity	May be harmful if swallowed.
Irritation	Eye irritant, possible skin and respiratory irritant.
Corrosivity	Slight - more likely with prolonged contact.
Sensitisation	Not to be expected.
Repeated dose toxicity	Similar to acute exposures.
Carcinogenicity	No data.
Mutagenicity	No data.
Toxicity for reproduction	No data.

11.2 Other information No data.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity	Unlikely to be harmful except in large quantities.
12.2 Persistence and degradability	No data.
12.3 Bioaccumulative potential	No data.
12.4 Mobility in soil	No data.
12.5 Results of PBT and vPvB assessment	No data.
12.6 Other adverse effects	Environmental hazards cannot be excluded by inappropriate handling or disposal.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods	Do not empty into drains; dispose of this material and its container in a safe way. Send to a licensed recycler, reclaimer or incinerator. Avoid release to the environment. Decontaminate empty containers before recycling.
13.2 Additional Information	None

SECTION 14: TRANSPORT INFORMATION

Land transport (ADR/RID) (a)(b)		Land transport (Within USA) (a)(b)	
UN number	Not hazardous for transport	UN number	Not hazardous for transport
Proper Shipping Name	Not hazardous for transport	Proper Shipping Name	Not hazardous for transport
Transport hazard class(es)	Not hazardous for transport	Transport hazard class(es)	Not hazardous for transport
Packing Group	Not hazardous for transport	Packing Group	Not hazardous for transport
Hazard label(s)	Not hazardous for transport	Hazard label(s)	Not hazardous for transport
Environmental hazards	Not hazardous for transport	Environmental hazards	Not hazardous for transport
Special precautions for user	Not hazardous for transport	Special precautions for user	Not hazardous for transport
Sea transport (IMDG) (a)(b)		Air transport (ICAO/IATA) (a)(b)	
UN number	Not hazardous for transport	UN number	Not hazardous for transport
Proper Shipping Name	Not hazardous for transport	Proper Shipping Name	Not hazardous for transport
Transport hazard class(es)	Not hazardous for transport	Transport hazard class(es)	Not hazardous for transport
Packing Group	Not hazardous for transport	Packing Group	Not hazardous for transport
Marine Pollutant	Not hazardous for transport	Environmental hazards	Not hazardous for transport
Special precautions for user	Not hazardous for transport	Special precautions for user	Not hazardous for transport

(a)– Consult with transport provider.

(b)– Check relevant regulations for Special Provisions.

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture	
15.1.1 EU regulations	
Authorisations and/or restrictions on use	Consult the supplier.
European Union (EINECS/ELINCS)	Referenced
WGK number	1
15.1.2 National regulations	
USA	
TSCA (Toxic Substance Control Act)	All chemicals listed
SARA 311/312 - Hazard Categories	None
SARA 302 - Extremely Hazardous Substances	Listed – None.
SARA 313 - Toxic Chemicals	Listed – None.
CERCLA (Comprehensive Environmental Response Compensation and Liability Act)	Listed – 24000 lbs as RQ.
CAA (Clean Air Act 1990)	Listed – None.
CWA (Clean Water Act)	Listed – None.
State Right to Know Lists	Listed –CAS# 7631-86-9 (Amorphous silica) CA,MA, MN, NJ, PA.
Proposition 65 (California)	Listed – None.

SAFETY DATA SHEET

TDP - HL Etching Solution for TDP System

Canada

WHMIS Classification D2B – Toxic material causing other toxic effects.
 Canada (DSL/NDSL) - Components of this product identified by CAS number are listed on the DSL or NDSL, or are otherwise in compliance with the New Substances Notification (NSN) regulations.

Canada Ingredient Disclosure List (CIDL) Listed – CAS# 110-15-6, 111-42-2 are listed on Canada's Ingredient Disclosure List.

15.2 Chemical Safety Assessment: Harmful if swallowed, Irritant (to eyes), Irritant to Skin, Possibly irritant if Inhaled.

SECTION 16: OTHER INFORMATION

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

LEGEND

ACGIH	American Conference of Governmental Industrial Hygienists	NA	not applicable, not available
AICS	Australian Inventory of Chemical Substances	NIOSH	National Institute for Occupational Safety and Health
ANSI	American National Standards Institute	ND	not determined
atm	atmosphere (pressure unit)	NFPA	National Fire Prevention Association
BOD	biological oxygen demand	NTP	National Toxicology Program
CAS	Chemical Abstracts Service	OC	open cup
CC	closed cup	OSHA	Occupational Safety and Health Administration
CDTA	Chemical Drug and Trafficking Act	Part	partition
COC	Cleveland Open Cup	PEL	permissible exposure limits
COD	chemical oxygen demand	ppb	parts per billion
coeff.	coefficient	PPE	personal protective equipment
CFR	Code of Federal Regulations	ppm	parts per million
CPR	cardio-pulmonary resuscitation	psi	pounds per square inch
DEA	Drug Enforcement Agency	RCRA	Resource Conservation and Recovery Act
DOT	Department of Transportation	RQ	Reportable quantity
DSCL	Dangerous Substances Classification and Labeling	RTK	Right to Know
EEC	European Economic Community	SARA	Superfund Amendments and Reauthorization Act
FDA	Food and Drug Administration	STEL	short-term exposure limit
HMIS	Hazardous Materials Information System	SUSDP	Standard for the Uniform Scheduling of Drugs and Poisons (Australia)
IARC	International Agency for Research on Cancer	TCC	Tagliabue Closed Cup
IDLH	immediate danger to life or health	TDG	Transportation of Dangerous Goods
kg	kilogram	TPQ	threshold planning quantity
L	liter	TQ	threshold quantity
LC50	median lethal concentration	TSCA	Toxic Substances Control Act
LD50	median lethal dose	TWA	time-weighted average
LEL	lower explosive limit	UEL	upper explosive limit
mg	milligram	WES	Workplace Exposure Standard (New Zealand)
mL	milliliter	WHMIS	Workplace Hazardous Material Information System

References: RTECS, CAS Registry, EINECS/ESIS, *Casarett & Doull's Toxicology*, *Goldfrank's Toxicological Emergencies*, Manufacturer Information

Risk Phrases

R34: Causes burns.
 R36: Irritating to eyes.
 R36/37/38: Irritating to eyes, respiratory system and skin.
 R37/38: Irritating to respiratory system and skin.
 R41: Risk of serious damage to eyes.

Hazard statement(s)

H314: Causes severe skin burns and eye damage.
 H315: Causes skin irritation.
 H316: Causes mild skin irritation.
 H318: Causes serious eye damage.
 H319: Causes serious eye irritation.
 H320: Causes eye irritation.
 H335: May cause respiratory irritation.

SAFETY DATA SHEET

TDP - HL Etching Solution for TDP System

Training advice: None

Additional Information: Ingredient names for labeling purposes (CAS #) - Water (7732-18-5), Amorphous silica dispersion (7631-86-9), Trehalose (6138-23-4), Glucono-1,5-lactone (90-80-2), Magnesium nitrate hexahydrate (13446-18-9), Sodium Hydroxide (1310-73-2), Succinic Acid (110-15-6)

The information contained herein is believed to be accurate but is not warranted to be so. Data and calculations are based on information furnished by the manufacturer of the product and manufacturers of the components of the product. Users are advised to confirm in advance of need that information is current, applicable and suited to the circumstances of use. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of this material even if reasonable safety procedures are followed. Any questions regarding this product should be directed to the manufacturer of the product as described in Section 1.