Safety Data Sheet

According to Canadian Hazardous Products Regulations and WHMIS 2015

Tough 2000 V2 Resin

SECTION 1: Identification

Product identifier

Product name: Tough 2000 V2 Resin
Product code: FLTO1502

Recommended use of the product and restriction on use

Relevant identified uses: For use in Formlabs SLA Printers.
Uses advised against: Not determined or not applicable.
Reasons why uses advised against: Not determined or not applicable.

Manufacturer or supplier details

Manufacturer:
United States
Formlabs, Inc
35 Medford St
Suite 201 Somerville, MA 02143
+1 617 855 0762
sds@formlabs.com

Emergency telephone number:

United States
CHEMTREC
1-800-424-9300 (24/7)

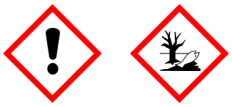
SECTION 2: Hazard identification

GHS classification:

Skin irritation, category 2
Eye irritation, category 2A
Skin sensitization, category 1
Specific target organ toxicity - single exposure, category 3, respiratory tract irritation
Chronic aquatic hazard, category 2

Label elements

Hazard pictograms:



Signal Word: Warning

Hazard statements:

H315 Causes skin irritation
H319 Causes serious eye irritation
H317 May cause an allergic skin reaction

H335 May cause respiratory irritation
H411 Toxic to aquatic life with long lasting effects

Precautionary statements:

P264 Wash skin thoroughly after handling
P280 Wear protective gloves, protective clothing and eye protection.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray
P272 Contaminated work clothing should not be allowed out of the workplace
P271 Use only outdoors or in a well-ventilated area
P273 Avoid release to the environment
P302+P352 IF ON SKIN: Wash with plenty of soap and water
P332+P313 If skin irritation occurs: Get medical advice/attention
P362+P364 Take off contaminated clothing and wash it before reuse
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337+P313 If eye irritation persists: Get medical advice/attention.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention
P363 Wash contaminated clothing before reuse
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing
P312 Call a POISON CENTER/doctor if you feel unwell
P391 Collect spillage
P403+P233 Store in a well-ventilated place. Keep container tightly closed
P405 Store locked up
P501 Dispose of contents/container in accordance with local/regional/national regulations

Hazards not otherwise classified:

None

SECTION 3: Composition/information on ingredients

Identification	Name	Weight %
CAS number: Trade Secret	Methacrylate monomer	40-60
CAS number: N/A	Methacrylate oligomer(s)	40-60
CAS number: 84434-11-7	Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate	<5
CAS number: Trade Secret	Methacrylate monomer	5-10
CAS number: Trade Secret	Colorant	<1

Additional Information: None

SECTION 4: First-aid measures

Description of first-aid measures

General notes:

Show this Safety Data Sheet to the doctor in attendance.

After inhalation:

If inhaled, remove person to fresh air and place in a position comfortable for breathing. If respiratory symptoms develop or persist, seek medical advice/attention.

After skin contact:

Wash affected area with plenty of soap and water. Remove contaminated clothing and launder before reuse. If skin irritation develops or persists, seek medical advice/attention.

After eye contact:

Rinse eyes with plenty of water for several minutes. Remove contact lenses if present and easy to do so. Protect unexposed eye. If symptoms develop or persist, seek medical advice/attention.

After ingestion:

If swallowed, DO NOT induce vomiting unless told to do so by a physician or poison control center. Rinse mouth with water. Never give anything by mouth to an unconscious person. If spontaneous vomiting occurs, place on the left side with head down to prevent aspiration of liquid into the lungs. If symptoms develop or persist, seek medical advice/attention.

Most important symptoms and effects, both acute and delayed

Acute symptoms and effects:

Skin contact may result in redness, pain, burning and inflammation.

Eye contact may result in irritation, redness, pain, inflammation, itching, burning and tearing.

Dermal exposure may cause an allergic skin reaction. Symptoms may include irritation, redness, pain, rash, inflammation, itching, burning and dermatitis.

Inhalation may have adverse effects on the respiratory tract. Symptoms may include cough, breathing difficulties, sore throat and inflammation of the mucous membrane lining the respiratory tract.

Delayed symptoms and effects:

Effects are dependent on exposure (dose, concentration, contact time).

Immediate medical attention and special treatment

Specific treatment:

If respiratory symptoms persist, seek medical attention.

Notes for the doctor:

Treat symptomatically.

SECTION 5: Fire-fighting measures

Extinguishing media

Suitable extinguishing media:

Water mist/fog, carbon dioxide, dry chemical or alcohol resistant foam.

Unsuitable extinguishing media:

Do not use water jet.

Specific hazards during fire-fighting:

Thermal decomposition may produce irritating/toxic fumes/gases.

Special protective equipment for firefighters:

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA).

Special precautions:

Avoid contact with skin, eyes, hair and clothing. Do not breathe fumes/gas/mists/aerosols/vapors/dusts. Move containers from fire area if safe to do so. Use water spray/fog for cooling fire exposed containers. Avoid unnecessary run-off of extinguishing media which may cause pollution.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Evacuate unnecessary personnel. Ventilate area. Extinguish any sources of ignition. Wear recommended personal protective equipment (see Section 8). Avoid contact with skin, eyes and clothing. Avoid breathing mist, vapor, dust, fume and spray. Do not walk through spilled material. Wash thoroughly after handling.

Environmental precautions:

Prevent further leakage or spillage if safe to do so. Prevent from reaching drains, sewers and waterways. Discharge into the environment must be avoided.

Methods and material for containment and cleaning up:

Do not touch damaged containers or spilled material unless wearing appropriate personal protective clothing. Stop leak if you can do it without risk. Contain and collect spillage and place in suitable container for future disposal. Dispose of in accordance with all applicable regulations (see Section 13).

Reference to other sections:

For personal protective equipment see Section 8. For disposal see Section 13.

SECTION 7: Handling and storage

Precautions for safe handling:

Use appropriate personal protective equipment (see Section 8). Use only with adequate ventilation. Avoid breathing mist/vapor/spray/dust. Do not eat, drink, smoke, or use personal products when handling chemical substances. Avoid contact with skin, eyes and clothing. Wash affected areas thoroughly after handling. Keep away from incompatible materials (See Section 10). Keep containers tightly closed when not in use.

Conditions for safe storage, including any incompatibilities:

Store in cool, dry, well-ventilated location out of direct sunlight. Keep away from food and beverages. Protect from freezing and physical damage. Store away from heat, open flames and other sources of ignition. Keep container tightly sealed. Store away from incompatible materials (See Section 10).

SECTION 8: Exposure controls/personal protection

Only those substances with limit values have been included below.

Occupational Exposure limit values:

Country (Legal Basis)	Substance	Identifier	Permissible concentration
Ontario	Colorant	Trade Secret	8-Hour TWA: 10 mg/m³
British Columbia	Colorant	Trade Secret	8-Hour TWA: 3 mg/m³ (respirable fraction)
	Colorant	Trade Secret	8-Hour TWA: 10 mg/m³ (total dust)
Quebec	Colorant	Trade Secret	8-Hour TWA: 10 mg/m³
Alberta	Colorant	Trade Secret	8-Hour TWA: 10 mg/m³
Manitoba	Colorant	Trade Secret	8-Hour TWA: 2.5 mg/m³ (finescale respirable particulate matter)

Country (Legal Basis)	Substance	Identifier	Permissible concentration
	Colorant	Trade Secret	8-Hour TWA: 0.2 mg/m³ (nanoscale respirable particulate matter)
Prince Edward Island	Colorant	Trade Secret	8-Hour TWA: 2.5 mg/m³ (finescale respirable particulate matter)
	Colorant	Trade Secret	8-Hour TWA: 0.2 mg/m³ (nanoscale respirable particulate matter)
New Brunswick	Colorant	Trade Secret	8-Hour TWA: 10 mg/m³
Saskatchewan	Colorant	Trade Secret	8-Hour Contamination Limit: 10 mg/m³
	Colorant	Trade Secret	15-Minute Contamination Limit: 20 mg/m³

Biological limit values:

No biological exposure limits noted for the ingredient(s).

Information on monitoring procedures:

Not determined or not applicable.

Appropriate engineering controls:

Emergency eye wash stations and safety showers should be available in the immediate vicinity of use or handling. Provide adequate ventilation to maintain the airborne concentrations of vapor, mists, and/or dusts below the applicable workplace exposure limits, while observing recognized national standards (or equivalent).

Personal protection equipment

Eye and face protection:

Safety glasses or goggles. Use eye protection equipment that has been tested and approved by recognized national standards (or equivalent).

Skin and body protection:

Chemical resistant, impervious gloves approved by the appropriate standards. Gloves must be inspected prior to use. Avoid skin contact with used gloves. Appropriate techniques should be used to remove used gloves and contaminated clothing. 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. Ensure that all personal protective equipment is approved by recognized national standards (or equivalent).

Respiratory protection:

If engineering controls do not maintain airborne concentrations below the applicable workplace exposure limits, or to an acceptable level (if exposure limits have not been established), a respirator approved by recognized national standards (or equivalent) must be worn.

General hygienic measures:

When handling chemical products, do not eat, drink or smoke. Wash hands after handling, before breaks, and at the end of the workday. Avoid contact with skin, eyes and clothing. Wash contaminated clothing before reuse. Perform routine housekeeping.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance (physical state, color):	Grey liquid
Odor:	Characteristic acrylate.
Odor threshold:	Not determined or not available.
pH-value:	Not determined or not available.
Melting/Freezing point:	Not determined or not available.
Boiling point/range:	>100°C
Flash point:	>93.5°C
Evaporation rate:	Not determined or not available.
Flammability (solid, gaseous):	Not flammable.
Explosion limit upper:	Not determined or not available.
Explosion limit lower:	Not determined or not available.
Vapor pressure:	Not determined or not available.
Vapor density:	Not determined or not available.
Density:	1.12 g/cm3
Relative density:	Not determined or not available.
Solubilities:	Not determined or not available.
Partition coefficient (n-octanol/water):	Not determined or not available.
Auto/Self-ignition temperature:	Not determined or not available.
Decomposition temperature:	Not determined or not available.
Dynamic viscosity:	1000 cP (25°C), 700 cP (35°C)
Kinematic viscosity:	Not determined or not available.
Explosive properties	Not determined or not available.
Oxidizing properties	Not determined or not available.

SECTION 10: Stability and reactivity

Reactivity:
Not reactive under recommended handling and storage conditions.

Chemical stability:
Stable under recommended handling and storage conditions.

Possibility of hazardous reactions:
Hazardous reactions are not anticipated under recommended conditions of handling and storage.
Stable under recommended handling and storage conditions.

Conditions to avoid:
Extreme heat, open flames, hot surfaces, sparks, ignition sources and incompatible materials.
Avoid storage >38°C (100°F) and exposure to light/direct sunlight and heat.

Incompatible materials:
Polymerization initiators, including peroxides, strong oxidizing agents, alcohols, copper, copper alloys, carbon steel, iron, rust, and strong bases.

Hazardous decomposition products:
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

Acute toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data:

Name	Route	Result
Methacrylate monomer	oral	LD50 Rat: 3160 mg/kg
		LD50 Rat: >=2000 mg/kg
	dermal	LD50 Rabbit: >3000 mg/kg
		LD50 Rabbit: >5000 mg/kg
Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate	oral	LD50 Rat: >5000 mg/kg
	dermal	LD50 Rat: >=2000 mg/kg
Colorant	oral	LD50 Rat: > 5000 mg/kg
	inhalation	LC50 Rat: 5.09 mg/L (4 hr [aerosol])
	dermal	LD50 Rat: > 2000 mg/kg

Skin corrosion/irritation

Assessment:

Causes skin irritation.

Product data:

No data available.

Substance data:

Name	Result
Methacrylate monomer	Causes skin irritation

Serious eye damage/irritation

Assessment:

Causes serious eye irritation.

Product data:

No data available.

Substance data:

Name	Result
Methacrylate monomer	Causes serious eye irritation
	Causes serious eye irritation.

Respiratory or skin sensitization

Assessment:

May cause an allergic skin reaction.

Product data:

No data available.

Substance data:

Name	Result
Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate	May cause an allergic skin reaction.
Methacrylate monomer	May cause an allergic skin reaction.

Carcinogenicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data: No data available.

International Agency for Research on Cancer (IARC):

Name	Classification
Methacrylate monomer	Not Applicable
	Not Applicable
Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate	Not Applicable
Colorant	Group 2B

National Toxicology Program (NTP):

Name	Classification
Methacrylate monomer	Not Applicable
	Not Applicable
Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate	Not Applicable
Colorant	Not Applicable

Germ cell mutagenicity

Assessment: Based on available data, the classification criteria are not met.

Product data:

No data available.

Substance data: No data available.

Reproductive toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data:

No data available.

Substance data: No data available.

Specific target organ toxicity (single exposure)

Assessment:

May cause respiratory irritation.

Product data:

No data available.

Substance data:

Name	Result
Methacrylate monomer	May cause respiratory irritation

Specific target organ toxicity (repeated exposure)

Assessment: Based on available data, the classification criteria are not met.

Product data:

No data available.

Substance data: No data available.

Aspiration toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data:
No data available.

Substance data: No data available.

Information on likely routes of exposure:
No data available.

Symptoms related to the physical, chemical and toxicological characteristics:
No data available.

Other information:
No data available.

SECTION 12: Ecological information

Acute (short-term) toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data:

Name	Result
Methacrylate monomer	Fish LC50 Danio rerio: 1.79 mg/L (96 hr)
	Aquatic Invertebrates EC50 Daphnia magna: 2.57 mg/L (48 hr [mobility])
	Aquatic Plants EC50 Pseudokirchneriella subcapitata: 2.28 mg/L (72 hr [growth rate])
	Aquatic Plants EC50 Pseudokirchneriella subcapitata: >97.2 mg/L (72 hr [growth rate])
	Fish LC50 Psetta maxima: 833 mg/L (96 hr)
	Aquatic Invertebrates EC50 Daphnia magna: >143 mg/L (48 hr [mobility])
Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate	Aquatic Plants EC50 Pseudokirchneriella subcapitata: >2.01 mg/L (72 hr [growth rate; read-across[)
	Fish LC50 Danio rerio: 1 mg/L (96 hr [read-across])
	Aquatic Invertebrates EC50 Daphnia magna: 3.53 mg/L (48 hr [read-across])
Colorant	Aquatic Plants EC50 Thalassiosira pseudonana, Skeletonema marinoi, Dunaliella terlilecta, and Isachrysis galbana: 415 mg/L (72 hr [growth rate])
	Aquatic Invertebrates EC50 Daphnia magna: >100 mg/L (48 hr [mobility])
	Fish LC50 Danio rerio: 155 mg/L (96 hrc[mortality])

Chronic (long-term) toxicity

Assessment:

Toxic to aquatic life with long lasting effects.

Product data: No data available.

Substance data:

Name	Result
Methacrylate monomer	Aquatic Invertebrates EC50 Daphnia magna: 0.658 mg/L (21 d [reproduction])
Colorant	Aquatic Plants NOEC Thalassiosira pseudonana, Skeletonema marinoi, Dunaliella terlilecta, and Isachrysis galbana: >= 1 mg/L (72 hr [growth rate])
	Aquatic Invertebrates NOEC Daphnia magna: >= 10 mg/L (21 d)

Persistence and degradability

Product data: No data available.

Substance data:

Name	Result
Methacrylate monomer	The substance is readily biodegradable. 70% degradation in water, measured by CO2 evolution, after 28 days.
Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate	The substance is not readily biodegradable. <10 % degradation in water, measured by O2 consumption, after 28 days.
Colorant	Persistence assessment based on biodegradability is not relevant for metals and its inorganic compounds such as this substance.
Methacrylate monomer	The substance is readily biodegradable. 81% degradation in water, measured by BOD, after 28 days.

Bioaccumulative potential

Product data: No data available.

Substance data:

Name	Result
Methacrylate monomer	Bioaccumulation can be assumed based on a log Pow value of 5.09. However, due to expected rapid metabolism and non-bioaccumulative potential of the metabolites, bioaccumulation in organisms is not expected.
Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate	The substance has a low potential for bioaccumulation based on a log Kow of 2.91.
Colorant	Bioaccumulation assessment using a classic BCF assessment is not considered relevant for essential elements/metals such as this substance.
Methacrylate monomer	Low potential to bioaccumulate (BCF: 3.2; Log kow: 1.21)

Mobility in soil

Product data: No data available.

Substance data:

Name	Result
Methacrylate monomer	The substance is slightly mobile in soil with a high potential for adsorption to soil and sediment. Log Koc: 3.71
Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate	Based on a log Koc of 3.37, adsorption to solid soil phase is expected.
Colorant	Mobility in soil assessment based on KOC/Kd values are not relevant for metals and its inorganic compounds such as this substance.
Methacrylate monomer	The substance has a low potential for adsorption to soil or sediments based on high water solubility, a low vapor pressure (0.11 hPa @ 20 deg C), and low log Kow (0.97).

Results of PBT and vPvB assessment

Product data:

PBT assessment: This product does not contain any substances that are assessed to be a PBT.

vPvB assessment: This product does not contain any substances that are assessed to be a vPvB.

Substance data:

PBT assessment:

Methacrylate monomer	This substance in not PBT

Colorant	PBT assessment does not apply to metals and their inorganic compounds such as this substance.
Methacrylate monomer	The substance is not PBT.

vPvB assessment:

Methacrylate monomer	This substance is not vPvB
Colorant	vPvB assessment does not apply to metals and their inorganic compounds such as this substance.
Methacrylate monomer	The substance is not vPvB.

Other adverse effects: No data available.

SECTION 13: Disposal considerations

Disposal methods:

Do not discharge into public wastewater or surface waters. It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities.

Contaminated packages:

Dispose contaminated packages in a safe manner in accordance with local and national regulations. Do not allow the product to be released into the environment.

SECTION 14: Transport information

Canadian Transportation of Dangerous Goods (TDG)

UN number	UN 3082
UN proper shipping name	Environmentally hazardous liquid, N.O.S. Urethane dimethacrylate
UN transport hazard class(es)	9 
Packing group	III
Environmental hazards	Marine Pollutant
Special precautions for user	None
Additional Information	This product is not regulated as a dangerous good when transported in sizes of ≤5L provided the packaging meets the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.

International Maritime Dangerous Goods (IMDG)

UN number	UN 3082
UN proper shipping name	Environmentally hazardous liquid, N.O.S. Urethane dimethacrylate
UN transport hazard class(es)	9 
Packing group	III
Environmental hazards	Marine Pollutant
Special precautions for user	None
Additional Information	This product is not regulated as a dangerous good when transported in sizes of ≤5L provided the packaging meets the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.

International Air Transport Association Dangerous Goods Regulations (IATA-DGR)

UN number	UN 3082
UN proper shipping name	Environmentally hazardous liquid, N.O.S. Urethane dimethacrylate
UN transport hazard class(es)	9 
Packing group	III
Environmental hazards	Marine Pollutant
Special precautions for user	None
Additional Information	This product is not regulated as a dangerous good when transported in sizes of ≤5L provided the packaging meets the general provisions of 5.0.2.4.1, 5.0.2.6.1 and 5.0.2.8.

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	
Bulk Name	None
Ship type	None
Pollution category	None

SECTION 15: Regulatory information

Canada regulations

Domestic substances list (DSL): All ingredients are listed or exempt.

Non-domestic substances list (NDSL): None of the ingredients are listed.

Additional information: Not determined.

SECTION 16: Other information

Abbreviations and Acronyms: None

Disclaimer:

This product has been classified in accordance with the Canadian Hazardous Products Regulations and WHMIS 2015. The information provided in this SDS is correct, to the best of our knowledge, based on information available. The information given is designed only as a guidance for safe handling, use, storage, transportation and disposal and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials, unless specified in the text. The responsibility to provide a safe workplace remains with the user.

Initial preparation date: 09.19.2025

Revision Notes:

Revision Date	Notes
2025-09-19	Initial Version - 1.0

End of Safety Data Sheet