Material Safety Data Sheet

SECTION 1、Chemical Product and Company Identification

Product name：Tenacious 3D Printing Resin (2.2 lbs (1 kg)
Other name：Tenacious by Siraya Tech
Recommended use of the chemical and restrictions on use：
For model making and printing

Names, addresses, and phone numbers of the manufacturer or supplier：
Siraya Tech
417 S San Gabriel Blvd, San Gabriel, CA, 91776 United States +1 6267338422
Emergency contact phone numbers/fax numbers：
Shuy Peng/+1 6267338422

SECTION 2、Hazard Identification

GHS / CLP Hazard Classification of the mixture:

None

Signal Word: Warning
Hazard Statement(s):

H303 May be harmful if swallowed (uncured material only)

Physical and Chemical Hazards	Not classified.
Human health	Not classified.
Environment	Not classified.

Precautionary Statement(s):
P202 Do not handle until all safety precautions have been read and understood.
P261 Avoid breathing dust or fume. (uncured material only)
P264 Wash thoroughly after handling.
P273 Avoid release to the environment.
P337+P313 If eye irritation persists: Get medical attention.

P501 Dispose of contents and container in accordance with local and national regulations.

Symbol:

Transport Information
Department of transportation classification: Not hazardous by D.O.T. regulations
D.O.T. proper shipping name: Not regulated
International Maritime Dangerous Goods Code (IMDG): **Not regulated**
International Air Transportation Association (IATA): **Not regulated**

Symbol:

Precautionary:
Slight irritation to skin, heat generation when polymerization, carbon oxide generation when decomposition by heat.

Transport Information
Department of transportation classification: Not hazardous by D.O.T. regulations
D.O.T. proper shipping name: Not regulated
International Maritime Dangerous Goods Code (IMDG): **Not regulated**
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SECTION 3、Composition/Information on Ingredients

Mixtures：
Chemical property：

Substance Identity	CAS No.	Approx. Weight (%)
Urethane Acrylate	877072-28-1	35~65
Acrylic Monomer	64401-02-1	25~40
Photoinitiator	119-61-9	0~5

SECTION 4、First Aid Measures

The first-aid measures for different exposure routes：
Inhalation：If overcome by exposure, give fresh oxygen or artificial respiration as needed.
Skin contact：Immediately remove contaminated clothing. Wash skin thoroughly with mild soap/water. Flush with lukewarm water for 15 minutes. If sticky, use waterless cleaner first. Seek medical attention if ill effect or irritation develops.
Eyes contact：In case of eye contact, immediately rinse with clean water for 20-30 minutes. Retract eyelids often. Consult medical professionals if irritation persists.
Ingestion：If large quantity swallowed, give lukewarm water (pint) if victim completely conscious/alert. Consult medical professionals if irritation persists.
The most important symptoms and hazardous effects：Slight skin irritation
The protection of first-aiders：Wear C class protective equipment and first aid in safety area.
Notes to physicians：Slight skin irritation, Symptoms may include localized redness or rash and swelling of the affected area, Symptoms may be delayed.

SECTION 5、Fire Fighting Measures
Suitable fire extinguishing media：Water, foam, carbon dioxide or dry chemical.
Specific hazards may be encountered during fire-fighting：
High temperatures, inhibitor depletion, accidental impurities, or exposure to radiation or oxidizers may cause spontaneous polymerizing reaction generating heat / pressure. Closed containers may rupture or explode during runaway polymerization.
Specific fire-fighting methods：
Full protective equipment, including self contained breathing apparatus is needed to protect fire fighters from exposure.
Special equipment / instructions for the protection of firefighters：
Chemical splash goggles and/or face shield, respiratory protection equipment, protective gloves, apron, boot.

SECTION 6、Accidental Release Measures
Personal precautions：Wear proper protective equipment, avoid raw material contact and vapor inhalation.
Environmental precautions：1. Extinguish all ignition sources and ventilate area. 2. Dispose/report per regulatory requirements.
Clean-up procedures：1. Avoid contact spilled or released material
2. Reduce spill or release in safety condition.
3. Soak up small spill with inert solids (such as vermiculite, clay) and sweep/shovel into vented disposal container.
4. Dike and recover large spill. Obtain emergency help by fire or emergency unit.

SECTION 7、Safe Handling and Storage Measures

Handling procedures：This product is inhibited to prevent uncontrolled polymerization. A polymerization can generate heat and pressure and may cause product container to rupture. Check inhibitor content often and add inhibitor to bulk liquid if needed.
Storage procedures：Maintain head space in storage containers to support oxygen requirements of the inhibitor(s). Do not blanket or mix with oxygen free gas, and prevent material from freezing (inhibitor can separate from product as a solid). Store drums above 10℃/50℉ and below 32℃/90℉. Bulk storage temperature range:15-27℃/59-80℉. Store drums away from heat sources, strong oxidizers, radiation and other initiators. Use product within six months of receipt for optimum results. If material freezes, heat and mix to redistribute the inhibitor. Product may also be heated to facilitate handling. Heat product container slowly to 40℃/104℉ for not more than 24 hours. Convection ovens or warm water bath (preferred due to more efficient heat transfer) are recommended for heating. Do not use drum heater. An air space, preferably an air bubble flow, should be provided for at all times during heating.

SECTION 8、Exposure Controls Measures
Engineering controls：1. Using no spark, grounding ventilation system, and separate from general ventilation system.
2. Exhaust waste gas to outdoor, and take applicable measure to protect environment.
3. Using local exhaust ventilation and closed processing system when mass production.
4. Complement exhaust air by ventilation system with supply plenty fresh air.
Control parameters

Substance name	TWA	STEL	CEILING	BEIs
Urethane Acrylate	—	—	—	—
Acrylic Monomer	—	—	—	—
Photoinitiator	—	—	—	—

Personal protective equipment：
Respiratory protection：If this material is handled at elevated temperature or under mist forming conditions, NIOSH/MSHA approved respiratory protection equipment should be used.
Hand protection：Chemical-resistant gloves should be wore when handing this product.
Eye protection：Chemical splash goggles and /or face shield must be worn when possibility exists for eye contact due to splashing or spraying liquid, airborne particles, or vapor. Contact lenses should not be worn
Skin and body protection：Depending on the conditions of use, protective gloves, apron, boots, head and face protection should be worn. This equipment should be cleaned thoroughly after each use.

Hygiene measures：1. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.
2. Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities.
3. Promptly remove soiled clothing/wash thoroughly before reuse. Shower after work using plenty of soap and water.

SECTION 9、Physical and Chemical Properties

Appearance (physical state, color, etc)：

Gray liquid at 25℃	Odor：Low Odor
Odor threshold：—	Melting point/freezing point：—
pH value：AP 6.8 - 7.2	Boiling point/boiling range：>100℃
Flammability (solid, gas)：—	Flash point： 110℃
Decomposition temperature：—	Test method：Closed cup
Autoignition temperature：—	Explosion limits：—
Vapor pressure：—	Vapor density：—
Density：1.11~1.15	Solubility：Water: Negligible

Partition coefficient of n-octanol/water：— Evaporation rate：—

SECTION 10、Chemical Stability and Reactivity Information

Chemical Stability：Stable on normal condition.
Possible hazardous reactions occurring under specific conditions：
Heat and pressure generation when polymerization and the result in closed container broken and cracked.
Conditions to be avoided：High temperatures, localized heat sources (i.e., drum or band heaters), oxidizing conditions, freezing conditions, direct sunlight, ultraviolet radiation, inert gas blanketing.
Materials to avoid：Strong oxidizers, strong reducers, free radical initiators, inert gases, oxygen scavengers.
Hazardous decomposition products：Acrid smoke-fumes/carbon monoxide/carbon dioxide and perhaps other toxic vapors may be released during a fire involving this product.

SECTION 11、Toxicological Information

Routes of exposure：Skin, inhalation, ingestion, eyes.
Symptoms：
After inhalation：No significant signs or symptoms indicative of any adverse health hazard are expected to occur at standard conditions due to the low volatility of this material. However, aerosols, or vapors which may be generated at elevated processing temperatures, may cause respiratory tract irritation. Symptoms of irritation may include coughing, mucous production and shortness of breath.
After skin contact：Although no appropriate human or animal health effects data are known to exist, this material is expected to be a skin irritant. Symptoms of irritation may include redness or rash, swelling of the affected area and blistering. Repeated or prolonged skin contact may cause a more severe skin response such

as ulcers and scarring. Symptoms of skin exposure may be delayed 24-48 hours. Although no appropriate human or animal health effects data is known to exist, this material may cause an allergic skin reaction (sensitization) in susceptible individuals upon repeated exposure.
After eye contact：Although no appropriate human or animal health effects data are known to exist, this material is expected to cause eye irritation. May cause moderate irritation with symptoms including burning sensation, tearing, redness or swelling.
After ingestion：Although no appropriate human or animal health effects data are known to exist, this material is expected to be a slight ingestion hazard.
Acute toxicity：—
Chronic toxicity or long term toxicity：—

SECTION 12、Ecological Information
Ecological toxicity：—
Persistence and degradability：—
Bio-accumulative potential：—
Mobility in soil：—
Other adverse effects：—

SECTION 13、Waste Disposal Measures
Methods of waste disposal：
1. Residues and spilled material may be hazardous waste due to potential for internal heat generator. Disposal must be in accordance with applicable federal, state, or local regulations.
2. The container for this product can present explosion or fire hazards, even when emptied. To avoid risk of injury, do not cut, puncture, or weld on or near this container. Since the emptied containers retain product residue, follow label warnings even after container is emptied.

SECTION 14、Transport Information
Department of transportation classification: Not hazardous by D.O.T. regulations
D.O.T. proper shipping name: Not regulated
International Maritime Dangerous Goods Code (IMDG): **Not regulated**
International Air Transportation Association (IATA): **Not regulated**

SECTION 15、Regulatory Information
Applicable regulations：N/DA

SECTION 16、Other Information
Reference documents
MSDS prepared by
Organization name：

Siraya Tech
417 S San Gabriel Blvd, San Gabriel, CA, 91776 United States +1 6267338422
Title : Lead Chemist Name (signature) : Emma Wang
Date : 2022/1/24
Remark : " – " = not available ; " / " = not applicable