BOSTER BIOLOGICAL TECHNOLOGY
3942 B Valley Ave, Pleasanton, CA 94566

Phone: 888-466-3604 Fax: 925-215-2184 Email: boster@bosterbio.com Web: www.bosterbio.com

Material Safety Data Sheet

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1 Product Identifiers

Catalog Number	HSEK0526
Product Name	Rat TNF Alpha/Tumor necrosis factor High Sensitivity ELISA Kit PicoKine®

Components:
Anti- Rat TNF Pre-coated 96-well strip microplate
Rat TNF Standard (contains Proclin 300)
Rat TNF Biotinylated antibody(100x) (contains Proclin 300)
Avidin-Biotin-Peroxidase Complex (ABC)(100x) (contains Proclin 300)
Sample Diluent (contains Proclin 300)
Antibody Diluent (contains Proclin 300)
Avidin-Biotin-Peroxidase Diluent (contains Proclin 300)
Color Developing Reagent(TMB) (contains 3,3',5,5'-Tetramethylbenzidine and hydrogen peroxide)
Stop Solution (contains sulfuric acid)
Wash Buffer(25X)
Plate Sealers

1.2 Application of the substance or mixture

For research use only.

1.3 Company Identification

Boster Biological Technology Co., Ltd.
3942 B Valley Ave, Pleasanton, CA, 94566, USA.
Fone: (888) 466-3604 Fax: (925) 215-2184

2.HAZARDS IDENTIFICATION

See additional safety data sheets

1. DENTIFICATION OF THE SUBSTANCE/MIXTURE

1.1 Product Identifiers

Product name: Rat TNF Standard (contains Proclin 300)
Rat TNF Biotinylated antibody(100x) (contains Proclin 300)

Avidin-Biotin-Peroxidase Complex (ABC)(100x) (contains Proclin 300)
Sample Diluent (contains Proclin 300)
Antibody Diluent (contains Proclin 300)
Avidin-Biotin-Peroxidase Diluent (contains Proclin 300)

2.HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [GHS/CLP] or 29 CFR 1910.1200 [OSHA]

Sensitization, skin - Category 1

2.2 Label Element

Labeling according to Regulation (EC) No 1272/2008 [GHS/CLP]

Pictogram(s):	

Signal Word:WARNING

Hazard statements:

H317: May cause an allergic skin reaction.

Precautionary statements:

P261: Avoid breathing dust/fumes/gas/mist/vapours/spray.
P272: Contaminated work clothing should not be allowed out of the workplace.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P302+352: IF ON SKIN: Wash with plenty of soap and water.
P333+313: If skin irritation or rash occurs: Get medical advice/attention.
P362+P364: Take off contaminated clothing and wash it before reuse.
Other Hazards: None.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Description: Proclin 300

Component	CAS-No.	Index-No.	Concentration
Mixture of 5-Cloro-2-Methyl-4-Isothiazolin-3-One (26172-55-4) and -Methyl-4-Isothiazolin-3-One (2682-20-4)	55965-84-9	613-167-00-5	0.04%

4.FIRST AID MEASURES

Skin contact	Immediately take off contaminated clothing or shoes. Wash with plenty of soap and water. Consult a physician.
Eye contact	Rinse immediately with plenty of water. Consult

	a physician.
Ingestion	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Immediately consult a physician.
Inhalation	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
Notes to physician	Treat symptomatically.

5.FIRE FIGHTING MEASURES

Suitable extinguishing media	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Special precautions for fire-fighters	Self contained breathing apparatus and full protective clothing must we worn in case of fire.
Special hazards arising from the substance or mixture	In combustion, may emit toxic fumes.

6.ACCIDENTAL RELEASE MEASURES

Personal precautions	Use appropriate personal protective equipment to prevent contamination of skin, eyes and personal clothing. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
Environmental precautions	Keep away from drains.
Methods and materials for containment and cleaning up	Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

7.HANDLING AND STORAGE

Handling	Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Use normal measures for preventive fire protection.
Storage	Store according to product specifications.

8.EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters: Contains no substances with occupational exposure limit values.

Individual protection measures: Wash hands thoroughly after handling chemical products and before eating, smoking or using the toilet. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing.

Eye/face protection	Wear approved safety goggles.
Skin/hand protection:	Handle with protective gloves, plastic or rubber. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
Body protection	Wear suitable protective clothing as protection against splashing or contamination.
Other skin protection	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved.
Respiratory protection	In case of inadequate ventilation, use a suitable respirator. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

9.PHYSICAL AND CHEMICAL PROPERTIES

Important Health Safety and Environment Information

a) Appearance Form:	Liquid.
b) Odour	no data available
c) Odour Threshold	no data available
d) pH	no data available
e) Melting point/freezing point	no data available

f) Initial boiling point and boiling range	no data available
g) Flash point	no data available
h) Evaporation rate	no data available
i) Flammability (solid, gas)	no data available
j) Upper/lower flammability or explosive limits	no data available
k) Vapour pressure	no data available
l) Vapour density	no data available
m) Relative density	no data available
n) Water solubility	no data available
o) Partition coefficient: noctanol/water	no data available
p) Auto-ignition temperature	no data available
q) Decomposition temperature	no data available
r) Viscosity	no data available
s) Explosive properties	no data available
t) Oxidizing properties	no data available

10.STABILITY AND REACTIVITY

Reactivity	Stable under recommended transport or storage conditions.
Chemical Stability	Stable under recommended storage and handling conditions.
Conditions to avoid	Heat, moisture.

Incompatible materials	Strong acids/alkalis, strong oxidising/reducing agents.
Hazardous decomposition products	Strong acids/alkalis, strong oxidising/reducing agents.
Hazardous polymerization	Hazardous polymerization does not occur.

11.TOXICOLOGICAL INFORMATION

Information on toxicological effects
Acute toxicity: Classified based on available data.
Skin irritant effect: Classified based on available data.
Serious Eye Damage / Irritation: Classified based on available data
Respiratory or Skin Sensitization: Classified based on available data.
Germ Cell Mutagenicity: Classified based on available data.
Carcinogenicity: Classified based on available data.
Reproductive Toxicity: Classified based on available data.
Specific Target Organ Toxicity - Single Exposure: Classified based on available data.
Specific Target Organ Toxicity - Repeated Exposure: Classified based on available data.
Symptoms / Routes of Exposure :
Inhalation: There may be irritation of the throat with a feeling of tightness in the chest.
Ingestion: There may be irritation of the throat.
Skin: There may be mild irritation at the site of contact.
Eyes: There may be irritation and redness.
Delayed / Immediate Effects: No known symptoms.
Additional Information: Classified based on available data.

12. ECOLOGICAL INFORMATION

Toxicity: No data available.
Persistence and degradability: No data available.
Bioaccumulative potential: No data available.
Mobility in soil: No data available.
Results of PBT and vPvB assessment: No data available.
Other adverse effects: No data available.

13.DISPOSAL CONSIDERATIONS

Disposal methods	Transfer to a suitable container and arrange for collection by specialized disposal company in accordance with national, regional, or local legislation.
Contaminated packaging	Dispose of in a regulated landfill site or other method for hazardous or toxic wastes in accordance with national, regional, or local legislation.

14.TRANSPORT INFORMATION

DOT	Not dangerous goods.
ADR	Not dangerous goods.
IATA	Not dangerous goods.

15. REGULATORY INFORMATION

US Federal and State Regulations
SARA 313 Components
Not applicable.
SARA 311/312 Hazards
Not applicable.
CERCLA Reportable Quantity
Not applicable.
California Prop. 65 Components
Not applicable.

16. OTHER INFORMATION

The above information was acquired by diligent search and/or investigation and the recommendations are based on prudent application of professional judgment. The information shall not be taken as being all inclusive and is to be used only as a guide. All materials and mixtures may present unknown hazards and should be used with caution. Since Boster Corporation cannot control the actual methods, volumes, or conditions of use, the Company shall not be held liable for any damages or losses resulting from the handling or from contact with the product as described herein.

1. DENTIFICATION OF THE SUBSTANCE/MIXTURE

1.1 Product Identifiers

Product name:
Color Developing Reagent(TMB) (contains 3,3’,5,5’-Tetramethylbenzidine and hydrogen peroxide)

2.HAZARDS IDENTIFICATION

Emergency Overview: These products do not contain any substances above any specific or generic concentration limits according to EC directives or respective national laws.
Classification of the mixture: These products do not contain any substances above any specific or generic concentration limits according to EC directives or respective national laws.
Label Elements: The products do not need to labeled with hazard elements.
Other Hazards: None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	EC No.	Concentration
3,3’,5,5’-Tetramethylbenzidine	54827-17-7	259-364-6	<0.06%
Hydrogen peroxide	7722-84-1	231-765-0	<0.03%

4.FIRST AID MEASURES

Skin contact	Wash off with soap and plenty of water. Consult a physician.
Eye contact	Flush eyes with water as a precaution.
Ingestion	Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
Inhalation	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
Notes to physician	Treat symptomatically.

5.FIRE FIGHTING MEASURES

Suitable extinguishing media	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Ensure adequate ventilation.
Special hazards arising from the substance or mixture	No data available.
Protective equipment for firefighters	Wear self-contained breathing apparatus for firefighting if necessary.

6.ACCIDENTAL RELEASE MEASURES

Personal precautions	Use standard laboratory practices including proper personal protective equipment.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Methods and materials for containment and cleaning up	Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.
Reference to other sections	For disposal see section 13.

7.HANDLING AND STORAGE

Handling	Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. For precautions see section 2.2.
Storage	Store according to product specifications.

8.EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering measures

Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Respiratory protection	If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.
Hand protection	Impervious gloves.
Eye protection	No special protective equipment required.
Skin and body protection	No special protective equipment required.

9.PHYSICAL AND CHEMICAL PROPERTIES

Important Health Safety and Environment Information

a) Appearance Form:	Clear liquid, colorless to trace blue.
b) Odour	Minimal odor characteristics.
c) Odour Threshold	no data available
d) pH	pH = 3.1 ± 0.5

e) Melting point/freezing point	no data available
f) Initial boiling point and boiling range	no data available
g) Flash point	no data available
h) Evaporation rate	no data available
i) Flammability (solid, gas)	no data available
j) Upper/lower flammability or explosive limits	no data available
k) Vapour pressure	no data available
l) Vapour density	no data available
m) Relative density	no data available
n) Water solubility	no data available
o) Partition coefficient: noctanol/water	no data available
p) Auto-ignition temperature	no data available
q) Decomposition temperature	no data available
r) Viscosity	no data available
s) Explosive properties	no data available
t) Oxidizing properties	TMB is readily oxidized by oxidizing agents such as common metal cations and trace metals, forming blue or yellow colored products.

10.STABILITY AND REACTIVITY

Chemical Stability	Stable under recommended storage and handling conditions.
Conditions to Avoid	Prolonged exposure to elevated temperature and

	light may cause blue or yellow color formation, and reduced reactivity.
Materials to Avoid	Strong oxidizing agents, strong acids. Contact with metals or metal surfaces may cause blue or yellow color formation.
Possibility of hazardous reactions	Hazardous reaction has not been reported.
Hazardous decomposition products	High temperature or fire conditions may cause toxic vapor formation, including oxides of carbon, nitrogen, and formation of hydrogen chloride gas.
Hazardous polymerization	Hazardous polymerization does not occur.
Conditions to avoid	None under normal processing.

11.TOXICOLOGICAL INFORMATION

Acute toxicity
Toxicity: Not classified as acutely toxic by oral, dermal, or inhalation routes.
Ingestion: No data available.
Skin Contact: No data available.
Eye Contact: No data available.
Inhalation: There may be irritation of the throat with a feeling of tightness in the chest.
Carcinogenicity: No components of this product present at levels greater than or equal to 0.1% are identified as probable, possible, or confirmed human carcinogens by IARC.
Reproductive Toxicity: No data available.
Specific Organ Toxicity: No data available
Delayed / Immediate Effects: No data available.

12. ECOLOGICAL INFORMATION

Aquatic toxicity: No data available.
Persistence and degradability: No data available.
Bioaccumulative potential: No data available.
Mobility in soil: No data available.
Other adverse effects: No data available.

13.DISPOSAL CONSIDERATIONS

Disposal methods	Dispose of waste in accordance to applicable national, regional, or local regulations.
Contaminated packaging	Do not re-use empty containers.

14.TRANSPORT INFORMATION

Transport class: Not hazardous for transport.
The goods are not regulated for transport by IATA.

15. REGULATORY INFORMATION

US Federal and State Regulations

SARA 313 Components
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).
California Prop. 65 Components This product does not contain any Proposition 65 chemicals.

16. OTHER INFORMATION

The above information was acquired by diligent search and/or investigation and the recommendations are based on prudent application of professional judgment. The information shall not be taken as being all inclusive and is to be used only as a guide. All materials and mixtures may present unknown hazards and should be used with caution. Since Boster Corporation cannot control the actual methods, volumes, or conditions of use, the Company shall not be held liable for any damages or losses resulting from the handling or from contact with the product as described herein.

1. DENTIFICATION OF THE SUBSTANCE/MIXTURE

1.1 Product Identifiers

Product name: Stop Solution (contains sulfuric acid)

2.HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [GHS/CLP] or 29 CFR 1910.1200 [OSHA]

Skin Corrosion/Irritation - Category 2
Serious eye damage/eye irritation - Category 2A

2.2 Label Element Labeling according to Regulation (EC) No 1272/2008 [GHS/CLP]

Pictogram(s):	

Signal Word:WARNING
Hazard statements:
H315: Causes skin irritation.
H319: Causes serious eye irritation.
Precautionary statements:
P264: Wash hands thoroughly after handling.

P280: Wear protective gloves/protective clothing/eye protection/face protection.
P302+352: IF ON SKIN: Wash with plenty of soap and water.
P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P321: Specific treatment (see Section 4).
P332+313: If skin irritation occurs: Get medical advice/attention.
P337+313: If eye irritation persists: Get medical advice/attention.
P362+364: Take off contaminated clothing and wash it before reuse.
Other Hazards: None.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Chemical Name	CAS-No	EC No.	Concentration	Classification
Sulfuric acid	7664-93-9	231-639-5	2%	H315 , H319

4.FIRST AID MEASURES

Skin contact	Immediately take off contaminated clothing or shoes. Wash with plenty of soap and water. Consult a physician.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Ingestion	Never give anything by mouth to an unconscious person. Rinse mouth with water. Immediately consult a physician.
Inhalation	Move to fresh air.
Notes to physician	Treat symptomatically.

5.FIRE FIGHTING MEASURES

Flammable properties	Not flammable.
Flash point	Not determined.
Suitable extinguishing media	Water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Protective equipment for firefighters	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear to prevent contact with skin and eyes.

6.ACCIDENTAL RELEASE MEASURES

Personal precautions	Use personal protective equipment. Ensure adequate ventilation.
Environmental precautions	Try to prevent the material from entering drains or water courses.
Methods and materials for containment and cleaning up	Soak up with inert absorbent material.
Methods for containment	Prevent further leakage or spillage if safe to do so.

7.HANDLING AND STORAGE

Handling	Avoid inhalation of vapour or mist.
Storage	Store in a cool, dry place, isolated from organic materials, nitrates, carbides, chlorates, chlomates and cyanides.

8.EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines:
This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Chemical Name	CAS-No	ACGIH TLV	OSHA PEL	NIOSH IDLH
Sulfuric acid	7664-93-9	TWA: 0.2 mg/m3 thoracic fraction	TWA: 1 mg/m3 (vacated) TWA: 1 mg/m3	IDLH: 15 mg/m3 TWA: 1 mg/m3

Exposure Guidelines: This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Personal protective equipment

Respiratory protection	In case of inadequate ventilation, use a suitable

	respirator.
Hand protection	Rubber gloves.
Eye protection	Safety glasses with side-shields.
Skin and body protection	Lightweight protective clothing
Hygiene measures	Handle in accordance with good industrial hygiene and safety practice.

9.PHYSICAL AND CHEMICAL PROPERTIES

Important Health Safety and Environment Information

a) Physical State	Liquid.
b)Boiling Point	no data available
c)Freezing/Melting Point	no data available
d)Autoignition Temperature	no data available
e)Flash Point	no data available
f)Explosion Limits, lower	no data available
g)Decomposition Temperature	no data available
h)Solubility in water	no data available

10.STABILITY AND REACTIVITY

Chemical Stability	Stable.
Materials to avoid	Metallic sulfides and metal powers.
Hazardous decomposition products	Sulfur dioxide,hydrogen sulfide, hydrogen gas.
Polymerization	No information available.

11.TOXICOLOGICAL INFORMATION

Acute toxicity
Product Information
Product does not present an acute toxicity hazard based on known or supplied information.

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sulfuric acid	2140 mg/kg (Rat)		510 mg/m3 (Rat) 2 h 347 ppm (Rat) 1 h

Principle Routes of Exposure/Potential Health effects

Eyes	Causes eye burns.
Skin	Causes skin irritation.
Inhalation	May be harmful if inhaled.
Ingestion	May be harmful if swallowed.

Specific effects

Carcinogenic effects	This product contains one or more substances which are classified by IARC as carcinogenic to humans (Group I), probably carcinogenic to humans (Group 2A) or possibly carcinogenic to humans (Group 2B).
Mutagenic effects	No information available.
Reproductive toxicity	No information available.
Reproductive toxicity	No information available.
Sensitization	No information available.
Target Organ Effects	No information available.

Chemical Name	ACGIH	IARC	NTP	OSHA

Sulfuric acid	A2	Group 1	Known	X

ACGIH: (American Conference of Governmental Industrial Hygienists)
A2 - Suspected Human Carcinogen
IARC: (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
NTP: (National Toxicity Program)
Known - Known Carcinogen
OSHA: (Occupational Safety & Health Administration)
X - Present

12. ECOLOGICAL INFORMATION

Ecotoxicity The environmental impact of this product has not been fully investigated.

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to microorganisms	Toxicity to daphnia and other aquatic invertebrates
Sulphuric acid		500: 96 h Brachydanio rerio mg/L LC50 static		29: 24 h Daphnia magna mg/L EC50

13.DISPOSAL CONSIDERATIONS

Disposal methods	This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.
Contaminated packaging	Do not re-use empty containers.

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical Name	California Hazardous Waste Status
Sulfuric acid	Toxic Corrosive

14.TRANSPORT INFORMATION

The substance does not belong to explosive substances; does not belong to flammable substances;

does not belong to oxidizing substances; does not belong to toxic substances; does not belong to radioactive substances; does not belong to corrosive substances and without other danger.

Proper shipping name	SULFURIC ACID
Hazard Class	8
Subsidiary Class	No information available.

15. REGULATORY INFORMATION

SARA 313 Components

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Sulphuric acid	CAS-No.	Weight	SARA 313 - Threshold Values
	7664-93-9	2%	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Reactive Hazard	No
Sudden Release of Pressure Hazard	No

Clean Water Act This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Sulphuric acid Substances	CAS-No.	CWA – Reportable	Quantities	Quantities

	7664-93-9	1000 lb		X

California Prop. 65 Components This product contains the following Proposition 65 chemicals.

Sulphuric acid	CAS-No.	Weight	Category
	7664-93-9	2%	Carcinogen

16. OTHER INFORMATION

The above information was acquired by diligent search and/or investigation and the recommendations are based on prudent application of professional judgment. The information shall not be taken as being all inclusive and is to be used only as a guide. All materials and mixtures may present unknown hazards and should be used with caution. Since Boster Corporation cannot control the actual methods, volumes, or conditions of use, the Company shall not be held liable for any damages or losses resulting from the handling or from contact with the product as described herein.