



**SAFETY DATA SHEET**

**SECTION 1**

**MATERIAL IDENTIFICATION**

PRODUCT NAME/DESCRIPTION: ATS-40

DISTRIBUTED / MANUFACTURED BY:  
Advanced Chemical Technologies  
9608 N Robinson  
Oklahoma City, OK 73114

Date: 3/30/2018, Version 1  
Phone: (405) 843-2585  
Emergency Phone: (800) 255-3924

**SECTION 2**

**HAZARD IDENTIFICATION**

CLASSIFICATION:

Flammability:	Category 1
Skin Corrosion/Irritation:	Category 2
Serious Eye Damage/Eye Irritation:	Category 2
Carcinogenicity:	Category 2
Reproductive Toxicity:	Category 1.5
TOST: Acute	Category 1
TOST: Chronic	Category 1
Aspiration:	Category 1
Aquatic Toxicity: Acute	Category 3

SIGNAL WORD:

DANGER!

HAZARD STATEMENTS:

Extremely flammable liquid and vapor.

Causes skin irritation.

Causes serious eye irritation.

Suspected of causing cancer.

Causes damage to organs through prolonged or repeated exposure.

Causes damage to organs.

May damage fertility or the unborn child.

May be fatal if swallowed and enters airways.

Harmful to aquatic life.



## PRECAUTIONARY STATEMENTS

Obtain Special instructions before use.

Do not handle until all safety precautions have been read and understood.

Use personal protective equipment as required.

Avoid breathing dust/fume/gas/mist/vapors/spray.

Use only outdoors or in a well ventilated area.

Wash all exposed skin thoroughly after handling.

Avoid release to the environment.

If medical advice is needed, have product container or label at hand.

Keep out of reach of children.

Read label before use.

Keep container tightly closed.

Keep only in original container.

Do not get in eyes, on skin, or on clothing.

Do not eat, drink, or smoke when using this product.

Keep away from heat/sparks/open flame/hot surfaces.-No smoking.

Do not spray on an open flame of ignition source.

Keep/store away from clothing/combustible materials.

Take any precaution to avoid mixing with combustibles.

Wear flame/fire resistant/retardant clothing.

In case of fire, stop leak if safe to do so.

In case of fire, eliminate all ignition sources if safe to do so.

Ground/bond container and receiving equipment.

Use explosion proof electrical/ventilating/lighting/equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Do not subject to grinding/shock/friction.

In case of fire, Evacuate area. Fight fire remotely due to the risk of explosion.

Avoid contact during pregnancy/while nursing.

## TOXICITY:

See Section 11

## SECTION 3

## HEALTH HAZARDS

CHEMICAL NAME	%W/W	CAS NUMBER
Isobutyl triethoxysilane	*60% to 70%	17980-47-1
Methanol	*10% to 15%	67-56-1
Dimethyl Carbonate	*20% to 30%	616-38-6
Naphtha, Medium Aliphatic	*0% to 5%	64742-88-7

(Proprietary Formula)

\*The exact percentage (concentration) of composition has been withheld as a trade secret.

## SECTION 4

## FIRST AID

Potential acute health effects:

- Eyes: May cause severe irritation, burns, and/or damage  
Skin: May cause severe irritation, burns, and/or damage  
Inhalation: Inhalation may cause severe irritation  
Ingestion: Ingestion may cause irritation, corrosion/ulceration, nausea, and vomiting.

Medical conditions aggravated by exposure:

None known.

Eye Contact: In case of contact, immediately flush eyes with cool running water. Lift and separate eyelids while flushing with plenty of water for at least 15 minutes. Get medical attention.

Skin Contact: Wash with soap and water. Get medical attention if irritation occurs. Wash clothing before reuse. Destroy contaminated shoes.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention if symptoms develop.

Ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Give plenty of water.

## SECTION 5

## FIRE FIGHTING MEASURES

Fire Hazard Classification (OSHA/NFPA): 3

Suitable extinguishing media: Water spray  
Alcohol resistant foam  
Carbon dioxide (CO<sub>2</sub>)  
Dry chemical.

Unsuitable extinguishing media: High volume water jet

Hazardous combustion products: Carbon oxides  
Silicon oxides  
Formaldehyde

Specific hazards during firefighting: Do not use a solid stream as it may scatter and spread fire.  
Flash back possible over considerable distance.  
Vapors may form explosive mixtures with air.

Specific extinguishing methods: Exposure to combustion products may be a hazard to health.  
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
Use water spray to cool unopened containers.  
Remove undamaged containers from fire area if it is safe to do so.

Special protective equipment for fire-fighters: Evacuate area.  
In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

## SECTION 6

## ACCIDENTAL RELEASE MEASURES

Personal Precautions, PPE, and Emergency Procedures: Remove all sources of ignition.  
Use personal protective equipment.  
Follow safe handling advice and personal protective equipment recommendations.

Environmental precautions: Discharge into the environment must be avoided.  
Prevent further leakage or spillage if safe to do so.  
Prevent spreading over a wide area (e.g. by containment or oil barriers).  
Retain and dispose of contaminated wash water.  
Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up: Non sparking tools should be used.  
Soak up with inert absorbent material.  
Suppress (knock down) gases/vapors/mists with a water spray jet.  
For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container.  
Clean up remaining materials from spill with suitable absorbent.  
Local or national regulations may apply to releases and disposal of material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.

## SECTION 7

## HANDLING AND STORAGE

Technical measures: Ensure all equipment is electrically grounded before beginning transfer operations.  
This material can accumulate static charge due to inherent physical properties and can therefore cause an electrical ignition source to vapors. In order to prevent a fire hazard, as bonding and grounding may be insufficient to remove static electricity, it is necessary to provide an inert gas purge before beginning transfer operations.  
Restrict flow velocity in order to reduce the accumulation of static electricity.

Local/Total ventilation: Use with local exhaust ventilation.  
Use only in an area equipped with explosion proof exhaust ventilation.

Advice on safe handling: Do not get on skin or clothing.  
Do not breathe vapors or spray mist.  
Do not swallow.  
Avoid contact with eyes.  
Handle in accordance with good industrial hygiene and safety practice.  
Non-sparking. Tools should be used.  
Keep container tightly closed.  
Keep away from water.  
Protect from moisture.  
Keep away from heat and sources of ignition.  
Take precautionary measures against static discharges.  
Take care to prevent spills, waste and minimize release to the environment.

Conditions for safe storage: Keep in properly labeled containers.  
Store locked up.  
Keep tightly closed.  
Keep in cool, well-ventilated place.  
Store in accordance with the particular national regulations.

Materials to avoid: Keep away from heat and sources of ignition.  
 Do not store with the following product types:  
 Strong oxidizing agents  
 Organic peroxides  
 Flammable solids  
 Pyrophoric liquids  
 Pyrophoric solids  
 Self-heating substances and mixtures  
 Substances and mixtures which in contact with water emit flammable gases  
 Explosives  
 Gases

**SECTION 8 PERSONAL PROTECTION / EXPOSURE CONTROLS**

Ventilation System: Always keep exposure below permissible exposure limits. In general dilution ventilation is a satisfactory health hazard control for this substance. However, if conditions of use create discomfort to the worker, a local exhaust system should be considered.

Airborne Exposure Limits: None Established.

Personal Protection: As prescribed in the OSHA Standard for Personal Protective Equipment (29 CFR 1920.132), employers must perform a Hazard Assessment for all workplaces to determine the need for, and selection of, proper protective equipment for each task performed.

Eyes: Wear face shield, safety glasses, or chemical goggles.

Hands & Skin: For prolonged or repeated handling, use impervious gloves. Gloves should be tested to determine suitability for prolonged contact. Use of impervious apron and boots are recommended.

Respiratory: If ventilation is not sufficient appropriate NIOSH/MSHA respiratory protection must be provided.

Work Practices: Eye wash fountain and emergency showers are recommended.

**SECTION 9 TYPICAL PHYSICAL AND CHEMICAL PROPERTIES**

Physical Form: Liquid  
 Color: Clear  
 Odor: Solvent  
 Odor Threshold: No data available.  
 pH: No data available.  
 Boiling Point: 155.5° C  
 Melting Point: No data available.  
 Flash Point: 32° C  
 Evaporation Rate (Butyl acetate=1): No data available.  
 Flammability: Flammable  
 Upper Explosion Limit (UEL): 16%(V)  
 Lower Explosion Limit (LEL): 0.92%(V)  
 Vapor Pressure: No data available.  
 Vapor Density: No data available.  
 Specific Gravity (Water=1): 0.92+/-0.05

Solubility Water:	Insoluble
Partition Coefficient:	No data available.
Auto ignition Temperature:	267° C
Decomposition Temperature:	No data available.
Viscosity (CPS):	17 sec #2 Zahn

## SECTION 10

## STABILITY AND REACTIVITY

Reactivity:	Not classified as a reactivity hazard
Chemical stability:	Stable under normal conditions
Possibility of hazardous reactions:	Flammable liquid and vapor. Vapors may form explosive mixture with air. Use at elevated temperatures may form highly hazardous compounds. Can react with strong oxidizing agents. Hazardous decomposition products will be formed upon contact with water or humid air. Hazardous decomposition products will be formed at elevated temperatures.
Conditions to avoid:	Exposure to moisture. Handling operations that can promote accumulation of static charges. Heat, flames, sparks.
Incompatible materials:	Oxidizing agents Water
Hazardous decomposition products:	Unknown
Contact with water or humid air:	Methanol
Thermal decomposition:	Formaldehyde

## SECTION 11

## TOXICOLOGICAL PROPERTIES

Information on likely routes of exposure

Inhalation

Skin contact

Ingestion

Eye Contact

Acute toxicity

Not classified based on available information

Product:

Acute oral toxicity:	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method
Acute inhalation toxicity:	Acute toxicity estimate: > 40 mg/l Exposure time: 4 h Test atmosphere: vapor Method: Calculation method
Acute dermal toxicity:	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method

Ingredients:

Dimethyl Carbonate

Routes of Entry: Absorbed through skin, eye contact, inhalation and ingestion

Toxicity to animals: Acute oral toxicity: (LD50): 6000 mg/kg (mouse)  
Acute dermal toxicity (ld50): >5000 mg/kg (rabbit)

Chronic effect on humans: May cause damage to the following organs: central nervous system (CNS)

Other toxic effects on humans: Hazardous in case of skin contact (irritant). Slightly hazardous in case of skin contact (permeator), of ingestion, of inhalation

Special remarks on toxicity to animals: Not available

Special remarks on chronic effects to humans: Not available

Special remarks on other toxic effects on humans:

Skin: Causes skin irritation. It can be absorbed through the skin.

Eyes: Causes eye irritation

Inhalation: May cause respiratory tract irritation. May cause drowsiness, unconsciousness and central nervous system depression. Vapors may cause dizziness or suffocation.

Ingestion: May cause irritation of the digestive tract. The toxicological properties of this substance have not been fully investigated.

Ingredients:

Isobutyl triethoxysilane

Acute oral toxicity: LD50 (rat): 10,000 mg/kg  
Assessment: The substance or mixture has no acute oral toxicity  
Remarks: Based on test data

Acute inhalation toxicity: LD50 (rat): >1525 ppm  
Exposure time: 4 h  
Test atmosphere: vapor  
Assessment: The substance or mixture has no acute inhalation toxicity  
Remarks: Based on test data

Methanol

Acute oral toxicity: Acute toxicity estimate (Humans): 300 mg/kg  
Method: Expert judgment

Acute inhalation toxicity: Acute toxicity estimate (Humans): 3 mg/l  
Test atmosphere: vapor  
Method: Expert judgment

Acute dermal toxicity: Acute toxicity estimate (Humans): 300 mg/kg  
Method: Expert judgment

Skin corrosion/irritation

Causes skin irritation

Ingredients:

Isobutyl triethoxysilane

Species: Rabbit

Result: Skin irritation

Remarks: Based on test data

Methanol

Species: Rabbit

Result: No skin irritation

Serious eye damage/eye irritation

Not classified based on available information

Ingredients:

Isobutyl triethoxysilane

Species: Rabbit  
Result: No eye irritation  
Remarks: Based on test data

Methanol

Species: Rabbit  
Result: No eye irritation

Respiratory or skin sensitization

Skin sensitization: Not classified based on available information

Respiratory sensitization: Not classified based on available information

Ingredients:

Isobutyl triethoxysilane

Assessment: Does not cause skin irritation  
Test Type: Skin: test type not specified  
Remarks: No known sensitizing effect  
Result: Based on test data

Methanol

Test Type: Maximization Test (GPMT)  
Routes of exposure: Skin contact  
Species: Guinea pig  
Result: Negative

Germ cell mutagenicity

Not classified based on available information

Ingredients:

Isobutyl triethoxysilane

Genotoxicity in vitro:

Test type: Bacterial reverse mutation assay (AMES)  
Result: Negative  
Remarks: Based on test data

Methanol

Genotoxicity in vitro:

Test type: Bacterial reverse mutation assay (AMES)  
Method: OECD Test Guideline 471  
Result: Negative

Genotoxicity in vivo:



Test type: Mammalian erythrocyte micronucleus test (in vivo cytogenic assay)  
Species: Mouse  
Application route: Intraperitoneal injection  
Result: Negative

#### Carcinogenicity

Not classified based on available information.

#### Ingredients:

##### Methanol

Species: Mouse  
Application route: Inhalation (vapor)  
Exposure time: 18 months  
Method: OECD Test Guideline 453  
Result: Negative

IARC No ingredients of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No ingredients of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by OSHA.

NTP No ingredients of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by NTP.

#### Potential chronic health effects:

##### Carcinogenicity

Naphtha, Medium Aliphatic Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

#### Reproductive toxicity

Not classified based on available information

#### Ingredients:

##### Methanol

#### Effects on fertility

Test type: Fertility/early embryonic development  
Species: Mouse  
Application route: Ingestion  
Result: Negative

#### Effects on fetal development

Test type: Embryo-fetal development  
Species: Mouse  
Application route: Ingestion  
Method: OECD Test Guideline 414  
Result: Positive  
Remarks: The effects were seen only in maternally toxic doses

STOT – single exposure

May cause drowsiness or dizziness

Ingredients:

Isobutyl triethoxysilane

Routes of exposure: Inhalation (vapor)  
Assessment: May cause drowsiness or dizziness  
Remarks: Information taken from reference works and the literature

Methanol

Target Organs: Eyes, Central Nervous System  
Assessment: Causes damage to organs

STOT – repeated exposure

Not classified based on available information

Ingredients:

Methanol

Species: Rat  
NOAEL: 1.06 mg/l  
Application route: Inhalation (vapor)  
Exposure time: 90 d

Aspiration toxicity

Not classified based on available information

Ingredients:

Naphtha, Medium Aliphatic

Routes of entry: Absorbed through skin, eye contact, Inhalation, Ingestion.  
Toxicity to animals: WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE: Acute oral toxicity (LD50): 5 mg/kg [Rat]. Acute dermal toxicity (LD50): 3 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 3400 4 hours [Rat].  
Chronic Effects on Humans: Causes damage to the following organs: skin, eyes central nervous system (CNS). May cause damage to the following organs: blood, kidneys, lungs, the nervous system, mucous membranes, peripheral nervous system, gastrointestinal tract, upper respiratory tract, ears.  
Other toxic effects on humans: Hazardous in case of skin contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).  
Special remarks on toxicity to animals: Not available.  
Special remarks on Chronic Effects on Humans: Not available.  
Special remarks on other Toxic Effects on Humans: Moderately toxic and narcotic in high concentrations.

**SECTION 12 ECOLOGICAL INFORMATION**

Ecotoxicity  
Ingredients:

Isobutyl triethoxysilane

Toxicity to fish

LC50 (Dani rerio (zebra fish)): > 100 mg/l

Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates

EC50 (Daphnia sp.): >864 mg/l

Exposure time: 48 h

Toxicity to algae

EC50 (Scenedesmus subspicatus): 1,170 mg/l

Exposure time: 72 h

Methanol

Toxicity to fish

LC50 (Lepomis macrochirus (Bluegill sunfish)): >15,400 mg/l

Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates

EC50 (Daphnia magna (Water flea)): >10,000 mg/l

Exposure time: 48 h

Toxicity to algae

EC50 (Pseudokirchneriella subcapitata (green algae)): 22,000 mg/l

Exposure time: 96 h

Method: OPPTS 850.5400

Toxicity to fish (Chronic toxicity)

NOEC (Oryzias latipes (Orange-red killifish)): 15,800 mg/l

Exposure time: 200 h

Toxicity to bacteria

EC50: 20,000 mg/l

Exposure time: 15 h

Persistence and degradability

Ingredients:

Isobutyl triethoxysilane

Biodegradability:

Result:

Not readily biodegradable

Biodegradation:

36 – 47%

Exposure time:

28 d

Method:

OECD Test Guideline 301B

Stability in water:

Degradation half-life: 4.6 h pH:7

Methanol

Biodegradability:

Result:

Readily biodegradable

Biodegradation

95%

Exposure time:

20 d

Bioaccumulation:

Ingredients:

Isobutyl triethoxysilane

Partition coefficient:

n-octanol/water:

Log Pow: -0.77

Mobility in soil:

No data available

Other adverse effects:

No data available

**SECTION 13**

**DISPOSAL CONSIDERATIONS**

Disposal methods

Resource Conservation and Recovery Act (RCRA):	When a decision is made to discard this material as supplied, it is classified as a RCRA hazardous waste.
Waste Code:	D001: Ignitability
Waste from residues:	Dispose of in accordance with local regulations.
Contaminated packaging:	Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not burn, or use cutting torch on, the empty drum.

**SECTION 14**

**TRANSPORT INFORMATION**

FLAMMABLE LIQUIDS, n.o.s.,  
 (Contains Dimethyl Carbonate, Alkoxysilane, Methanol, Medium Aromatic Naphtha)  
 3, UN1993, PGIII  
 LABEL/PLACARD REQUIRED

**SECTION 15**

**REGULATORY INFORMATION**

US FEDERAL REGULATIONS

SARA (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT):

SARA 302 EXTREMELY HAZARDOUS SUBSTANCES LIST: N/A

SARA 312 HAZARD CATEGORY: N/A

SARA 313 TOXIC CHEMICALS LIST: N/A

CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT):

N/A

RCRA (RESOURCE CONSERVATION AND RECOVERY ACT) LISTED HAZARDOUS WASTES:

N/A

CWA (CLEAN WATER ACT) LISTED SUBSTANCES:

N/A

FDA (FOOD AND DRUG ADMINISTRATION):

N/A

TOXIC SUBSTANCES CONTROL ACT (TSCA):

ALL INGREDIENTS ARE LISTED.

NFPA HAZARD INFORMATION SIGN:

[2] **HEALTH HAZARD (BLUE DIAMOND)**

- 4-DEADLY
- 3-EXTREME DANGER
- 2-HAZARDOUS
- 1-SLIGHTLY HAZARDOUS
- 0-NORMAL MATERIAL

[1] **REACTIVITY HAZARD (YELLOW DIAMOND)**

- 4-MAY DETONATE
- 3-SHOCK AND HEAT MAY DETONATE
- 2-VIOLENT CHEMICAL CHANGE
- 1-UNSTABLE IF HEATED
- 0-STABLE

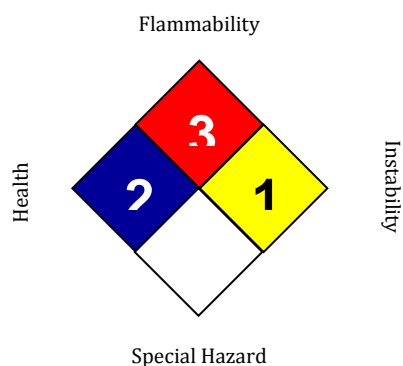
[3] **FIRE HAZARD (RED DIAMOND)**

- FLASH POINTS:
- 4-BELOW 73 F
  - 3-BELOW 100 F
  - 2-BELOW 200 F
  - 1-ABOVE 200 F
  - 0-WILL NOT BURN

[ ] **SPECIFIC HAZARD (WHITE DIAMOND)**

- OX      OXIDIZER
- ACID    ACID
- ALK     ALKALI
- COR     CORROSIVE
- W        USE NO WATER

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<b>HEALTH</b>	<b>2</b>
<b>FLAMMABILITY</b>	<b>3</b>
<b>PHYSICAL HAZARD</b>	<b>1</b>

- 0 = not significant**
- 1 = slight**
- 2 = moderate**
- 3 = high**
- 4 = extreme**
- \* = chronic**

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