APPENDIX A
MATERIAL SAFETY DATA SHEETS (MSDSs)

Material Safety Data Sheet

May be uaad to comply with
OSHA's Hazard Communication Standard,
29 CFR 1910.1200. Standard must be
consulted for specific requirements.

U.S. Department of Labor
Occupational safety and Health Administration
(Non-Mandatory Form)
Form Approved
OMB No. 1218-0072

IDENTITY (As used on Label and List) Crystal Clear	Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

section I

Manufacturer's Name	Emergency Telephone Number
AAA Chemicals	215-555-2456
Address (Number, Street, City, State, and ZIP Cods)	Telephone Number for Information
100 A Street	215-555-2400
Anytown, NJ 99999	Date Prepared 6/12/85
	- of Preparer (optional)

Sectlon II — Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH nv	Other Limits Recommended	% (optional)
Toluene	200 ppm	100 ppm		30
Methylene Chloride	500 ppm	100 ppm		25
Hexane	500 ppm	50 ppm		19
Propane	1000 ppm	N/A		10,
Aromatic Naphtha (Stoddard Solvent)	500 ppm	100 ppm		2.0

Note: Propane functions as an aerosol propellant

section III — Physical/Chemical Characteristics

Boiling Pant	120°F	Specific Gravity (H_2O - 1)	0.96
Vapor Pressure (mm Hg.)	N/A	MaSing Point	N/A
Vapor Density (AIR = 1)	> 1	Evaporation Rata (Butyl Acetate = 1)	> 1

Volubility in Water
Insoluble

Appearance and Odor
Clear liquid with sweer, aromatic odor.

section IV - Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	LEL	UEL
<20°F (For propellant)	N/A		

Extinguishing Media
Carbon Dioxide, Foam, Dry chemical

Special Fire Fighting Procedures
The contents are under pressure, when exposed to high temperature they will explode.

In case of fire, keep exposed containers cool.

Unusual Fire and Explosion Hazards
Contents are classified as "Extremely Flammable". They can be ignited readily.

NOTE : Fire Data is given for propane, the most fire hazardous ingredient.

Section V - Reactivity Data

Stability	Unstable		Conditions to *Avoid* Elevated (120°F) Temperature
	stable	X	

Incompatibility (*Materials to Avoid*) Keep away from all corrosives and active metal (Aluminum, Magnesium, Strong Oxidizers.

Hazardous Decomposition or Byproducts Combustion Products: Carbon Monoxide; Carbon Dioxide, Phosgene; Hydrogen Chloride.

Hazardous Polymerization	May Occur		Conditions to Avoid N/A
	Will Not Occur	X	

Section VI - Health Hazard Data

Route(s) of Entry:	Inhalation?	Skin?	Ingestion?
	YES	YES	NO

Health Hazards (*Acute and Chronic*)
Central Nervous System Depressant - Symptons include: dizziness, disorientation, confusion. CHRONIC: Liver & kdney damaae ewill result from long te rm over-exposure. Symptons of this effect willnot be seennuntillyears of exposure have existed.

Carcinogenicity:	NTP?	IARC Monographs?	OSHA Regulated?
	YES	NO	NO

Signs and Symptoms *of* Exposure
Worker may appear drunk or confused: headache, nausea; skin dry and irritated.

Eyes - burning and irritation.

Medical Conditions Generally Aggravated by Exposure Liver, kidney, conditions and ethanol dependency, respirator tract conditions.

Emergency and First Aid Procedures
Remove the victim to fresh air if you can without harm to yourself. Begin CPR if breathing has stopped. For skin contact, wash with warm water. For eye contact, flush with water for at least 15 minutes.

Section VII - Precautions for Safe Handling and Use

Steps to Be Taken in Case Material is Released or Spilled
Remove source of ignition. Soak up with absorbent material, and place in closed container. Ventilate area and place in closed container.

Waste Disposal Method
Dispose of as hazardous wastes in accordance with state and federal relations.

Precautions to Be Taken in Handling and Storing
Do not store above 120°F. Excessive heat will cause containers to burst suddenly and violently. Combustion products are highly toxic.

Other Precautions
Vapors tend to collect in low areas.

Section VIII — Control Measures

Respiratory Protection (*Specify Type*)
Use self-contained breathing apparatus if vapor conc. above TLVs.

Ventilation	Local *Exhaust* Not normally required vapors conc. less than TLVs. When	Special N/A
	Mechanical (*General*) Will often be adequate	Other N/A

Protective Gloves Neoprene or butyl rubber	Eya Protection goggles

Other Protective Clothing or Equipment
Not normally required for aerosol usage.

Work/Hygienic Practices
N/A

*U.S. Government Printing Office: 1987—181-504/64362

Material Safety Data Sheet.

May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements.

U.S. Department of Labor

Occupational Safety and Health Administration
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IDENTITY *(As Used on Label and List)*
Automatic Transmission Fluid

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

section I

Manufacturer's Name Some Chemical Company	**Emergency Telephone Number** 318-555-5214
Address *(Number, Street,* city, stem, *and ZIP Code)* P.O. Box 3758	**Telephone Number** for Information 318-555-5000
Anytown , OK 74000	**Date Prepared** 2/26/86
	S @ = J f s ~ - (-

Section II – **Hazardous Ingredients/Identity** Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH nv	Other Limits Recommended	% *(optional)*
Refined Oils (Oil mist)	5mg/m³	5mg/m³	10 mg/m³ (STEL)	87-95 %
Anti - Oxidant				3-12 %
Dye and Additives				< 1.0 %

Section III — Physical/Chemical Characteristics

soiling Point (327°C)	620°F	Specific Gravity (H_2O = 1)	0.87
Vapor Pressure (mm Hg.)	2.7	Melting Point	N/A
Vapor Density (AIR = 1)	N/A	Evaporation Rate (Butyl Acetate = 1)	N/A

Solubility in water
Negligible

Appearance and Odor
Red oily liquid, slight oily odor

Section IV - Fire and Explosion Hazard Data

Flash Point (Method used)	Flammable Limits	LEL	UEL
202° C (395°F) (Cot)		N/A	N/A

Extinguishing Media Carbon Dioxide, dry chemical, foam or water fog. Do not use direct stream of water - product will float and" can be reignited on surface of water.

Special Fire Fighting Procedures Do not enter confined fire space without full Bunker gear, including a positive pressure NIOSH - approved self-contained breaching apparatus.

Unusual Fire and Explosion Hazards
Water used to extinguish may cause frothing.

Burning liquid will float on water.

Section V - Reactivity Data

Stability			
	Unstable		Conditions to Avoid: None
	Stable	x	Heat, open flames, oxidizing materials

Incompatibility (*Materials to Avoid*)
Strong oxidizer

Hazardous Decomposition or Byproducts Combustion may result in a complex mixture of air borne solids, liquids and gases. Carbon monoxide and other unidentified organic compounds.

Hazardous Polymerization			
	May Occur		Conditions to *Avoid*: None
	Will Not Occur	x	

Section VI - Health Hazard Data

Route(s) of Entry:	Inhalation?	Skin?	Ingestion?
	YES	NO	YES

Health Hazards (Acute *and Chronic*) vapors and mists may cause drowsiness, dizziness, headache, nausea, and respiratory tract irritation. Mist in massive exposure may cause pneumonitis. Ingestion may cause stomach irritation and diarrhea. CHRONIC: Repeated contact with skin may cause drying, cracking, and dermatitis.

Carcinogenicity:	NTP?	IARC Monographs?	OSHA Regulated?
	NO	NO	*NO*

Signs and Symptoms of Exposure
Drowiness, headache, nausea, respiratory tract irritation, skin irritation.

Medical Conditions Generally Aggravated by Exposure Personnel with pre-existing skin or respiratory disorders should avoid contact with this product.

Emergency and First Aid Procedures Remove overcome victim to fresh air and provide oxygen if breathing is difficult. Begin artifical respiration if not breathing. Flush eyes and skin with water for 15 minutes or more. Do not induce vomiting. Get medical attention.

Section VII - Precautions for Safe Handling and Use

Steps to Be Taken in Case Material Is Released or Spilled
Dike spill, soak up on absorbent material and dispose of properly. Flush area with water to remove trace residues. Remove large spill with vacuum trucks or pump to storage salvage vessels.

Waste Disposal Method
Dispose of In accordance with EPA and state and local rules.

Precautions to Be Taken in Handling and Storing
Keep away from extreme heat and open flame.

Other Precautions
May burn although not readily ignitable.

Section VIII - control Measures

Respiratory Protection (*Specify Type*)
Not normally needed.

Ventilation		
	Local Exhaust: Not normally needed.	Special: N/A
	Mechanical (General)	Other

Protective Gloves Chemical resistant gloves to minimize skin contact. Oil proof for prolonged use, NITRILE. **Eye Protection** Safety goggles.

Other Protective Clothing or Equipment Protective clothing as required to minimize skin contact. Should misting be anticipated, use MIST respirator or organic vapor.

Work/Hygienic Practices Minimize skin contact. Wash hands with plenty of soap and water after use. Remove oil-soaked clothing and launder before re-use. Properly dispose of contaminated leather articles, including shoes, that cannot be decontaminated.

• US. Government Printing Oreo: 1987—181-604/64362

Material Safety Data Sheet

May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements.

U.S. Department of Labor
Occupational Safety and Health Administration
(Non-Mandatory Form)
Form Approved
OMB No. 1218-0072

IDENTITY *(As Used on Label and List)*
CAUSTIC SODA BEADS

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate at.

Section I

Manufacturer's Name Some Importer Inc.	Emergency Telephone Number 304-555-1515
Address *(Number, Street, City,* stem, *and* ZIP *Code)* 12 Edgar Street Somerville, New Jersey 17272	Telephone Number for Information 304-555-1500 Date Prepared 2/12/84 Signature of Preparer *(optional)*

Section II — Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% *(optional)*
Sodium Hydroxide (caustic soda: soda lyr; lyr)	2mg/m3	2 mg/m3 - ceiling		100%

Section III - Physical/Chemical Characteristics

soiling Point	1390°C	Specific Gravity (H_2O = 1)	2.13
Vapor Pressure (mm Hg.)	0	Malting Point	318° C
Vapor Density (AIR = 1)	N/A	Evaporation Rate (Butyl Acetate = 1)	1

Volubility in Water
50g/100g

Appearance and Odor
White powder, no odor

Section Iv — Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	LEL	UEL
None - non combustible	N/A	N/A	N/A

Extinguishing Media
Flood with water using care not to splatter or splash.

Special Fire Fighting Procedures
Wear full protective clothing and self-contained breathing apparatus when fighting fires involving this material.

Unusual Fire and Explosion Hazards
Not combustible but solid form in cotact with moisture or water may generate sufficient heat to ignite combustible material.

Section V - Reactivity Data

Stability			Conditions to Avoid
	Unstable		
	Stable	X	None

Incompatibility (Materials to Avoid) Water, acids, flammable materials, chlorinated hydrocarbon, aluminum, tin, zinc, nitro compounds.

Hazardous Decomposition or Byproducts
None

Hazardous Polymerization			Conditions to Avoid
	May Occur		None
	Will Not Occur		

Section VI - Health Hazard Data

Route(s) of Entry:	Inhalation?	Skin?	Ingestion?
	YES	YES	YES

Health Hazards (Acute and Chronic) ACUTE : Mild irritation to major destructive burns. Destructive to all human tissue it contacts. Eye contact can cause blindness. Ingestion can burn mouth, throat, and stomach and may be fatal. Inhalation of mist may be corrosive to upper respiratory tract.

Carcinogenicity:	NTP?	IARC Monographs?	OSHA Regulated?
	NO	NO	NO

Signe and Symptoms of Exposure
Burning: Inhalation of dust or mist vary from minor irritation to severe burning of upper respiratory tract.

Medical Conditions
Generally Aggravated by Exposure Impaired pulmonary function or other respiratory tract disorder. Chronic skin or eye disorders.

Emergency and First Aid Procedures Wash immediately with water. For inhalation, get to fresh air. For ingestion, give large amounts of water. Do not induce vomiting.

Section VII - Precautions for Safe Handling and Uee

Steps to Be Taken in Caaa Material Is Released or Spilled
Wear protective equipment to prevent skin and eve contact. Promptly shovel into suitable container. Avoid dust generation.

Waste Disposal Mathod
Follow local, state and federal regulations. Dilute well with water and carefully neutralize with acid.

Precautions to Be Taken in Handling and Storing Store away from incompatible materials noted above. Store in well-sealed containers in a dry location, avoid dust generation. Sodium hydroxide will attack some forms of plastics, rubber and coatings.

Other Precautions
When working with solutions, full body protection may be required.

Section VIII - Control Measures

Respiratory Protection (Specify Type)
Air purifying with High Efficiency Filter.

Ventilation			
	Local Exhaust N/A	Special	N/A
	Mechanical (General) N/A	other	N/A

Protective Gloves	Eye Protection
Rubber *(See precautions section)	Dust and chemical splash-proof safety gogs

Other Protective Clothing or Equipment
Rubber *apron, rubber *boots (see precautions section)

Work/Hygienic Practices Eye wash and safety showers must be immediately available. Eating and smoking should not be permiited in areas where sodium hydroxide is stored.

*U.S. Government Printing Office: 1S871914 WC41C

*See "Guide for the Selection of Chemical Protective Clothing", 3rd Edition, Vol. II
A. D. Little (for EPA and U. S. Coast Guard)

MATERIAL SAFETY DATA SHEET

IDENTITY
Methanol/Wood Alcohol

SECTION I

Manufacturer's Name
A Chemical Company

Emergency Telephone Number
215-555-6500

1.

Address
1500 Beacon Street

Telephone Number for Information
215-555-1207

Some City, NJ 99999

Date Prepared
11/09/85

SECTION II - Hazardous Ingredients/Identity Information

Methanol (Wood alcohol; wood naphtha)	200 ppm	200 ppm	100%

SECTION III - Physical/Chemical Characteristics

Boiling Point:	64.51*C	Specific Gravity (H20 = 1)	0.7924
Vapor Pressure @ 20°C	97.30	Melting Point	-97.8°C
Vapor Density:	‘ 1.1	Evaporation Rate	5.9

Volubility in Water: Complete

Appearance and Odor: Clear, colorless, liquid with an alcohol odor.

SECTION IV - Fire and Explosion Hazard Data:

Flash Point (Method Used)	Flammable Limits	LEL	UEL
11°C (52°F) (Closed cup)		6.0%	36%

Extinguishing Media:
Dry chemical, foam, carbon dioxide, water fog.

Special Fire Fighting Procedures:
Use water spray tokeep exposed containers cool. Water spray may be used to disperse liquid and dilute to nonflammable mixture. Do not enter confined fire space without full Bunker gear, including a positive pressure **NIOSH-approved** self-contained breathing apparatus.

Unusual Fire **and** Explosion Hazards:
Fire exposed containers will explode. Vapors are heavier than air and may travel a considerable distance to an **ignition** source and flashback.

SECTION V - Reactivity Data:

Stability Unstable — Conditions to Avoid: Heat, sparks, open flame, contact with strong oxidizers.
Stable x

Incompatibility (Materials to Avoid):
Oxidizers, active metals such as Aluminum and Zinc.

Hazardous Decomposition or Byproducts: (Combustion) Carbon Dioxide, Carbon Monoxide, Aldehydes and unidentified organic compounds.

Conditions to Avoid: N/A

Will Not Occur: X

SECTION VI - Health Hazard Data:

Routes of Entry:	Inhalation?	Skin?	Ingestion?
	YES	YES	YES

Health Hazards (Acute and Chronic):
ACUTE : Drowiness, drunkenness, headache, eye irritation and visual disturbances 'leading to blindness, coughing, shortness of breath and respiratory tract irritation. In extreme cases can result in collapse and death. Eye irritation may occur.
CHRONIC: Prolonged and repeated skin contact can result in dermatitis. Will be absorbed through the intact skin. Prolonged or repeated over-exposure by all routes can result in damage to the central nervous system, liver, kidneys and eyes, blindness and death.

Carcinogenicity:	NTP	ARC Monographs?	OSHA Regulated?
	NO	NO	NO

A 1985 publication reported teratogenicity in rats inhaling 20,000 ppm 7 hours/day during gestation with little maternal toxicity (Fund. Appl. Tox. 5:727 1985).

Signs and Symptoms of Exposure:
Irritation to nose, throat, respiratory tract and eyes. Headache, dizziness, nausea; changes in urinary output; edema; loss of appetite; jaundice; fatigue.

Medical Conditions: Impaired liver and kidney functions; eye disease; skin and respiratory disorders.

Emergency and First Aid Procedures: Ingestion: Induce vomiting; Inhalation: If overcome by exposure, move the victim immediately to fresh air and provide oxygen if breathing difficult. Keep warm and quiet administer artifical respiration if not breathing. Get medical attention. For eye and skin contact, flush with water for 15 minutes.

SECTION VII - Precautions for Safe Handling and Use:

Steps to be taken in Case Material is Released or Spilled: Dike the spill, eliminate sources of ignition. For large spills, evacuate hazard area. Soak up spill with absorbent material and place in non-leaking containers. Do not flush into drains. Use only grounded equipment to prevent sparking. Wear appropriate Protective clothing and equipment. Suppress vapor cloud with water fog.

Waste Disposal Method: May be incinerated or disposed of as a hazardous waste in an approved land fill. Refer to latest EPA or state regulations regarding proper disposal.

Precautions to Be Taken in Handling and Storing:
Store in tightly closed vented containers away from heat, flame, sparks and oxidizing agents. Ground & Bond when dispensing. Use non-sparking tools. Extinguish pilot lights and other sources of ignition until all vapors are gone.

Other Precautions:
Do not reuse contaminated clothing or shoes until cleaned.

SECTION VIII - Control Measures:

Respiratory Protection (Specify Type)
Air supplied only.

Ventilation: Local Exhaust: Explosion-proof ventilation should be used to control vapor accumulation.

Special:
Explosion-proof ventilation.

Mechanical (General):
Explosion-proof

Other:
N/A

Protective Gloves:
Impervious, chemical resistant

Eye Protection: Splash proof safety glasses or goggles as appropriate.

Other Protective Clothing or Equipment:
Chemical protective aprons, boots, and face shield as necessary when splashing may occur.

Work/Hygienic Practices:
Avoid prolonged or repeated contact with skin.
DO NOT USE AIR PURIFYING RESPIRATOR: METHANOL HAS POOR WARNING PROPERTIES AND CARTRIDGES HAVE VERY SHORT BREAK-THROUGH TIMES.

Material Safety Data Sheet

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U.S. Department of Labor

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(Non-Mandatory Form)
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IDENTITY *(As Used on Label and List)*
732 Selant

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

section I

Manufacturer's Name 12 Smith Company	Emergency Telephone Number I 517-555-3905
Address *(Number, Street, City, State, and ZIP Code)* 12 Smith Street	Telephone Number for Information 517-555-3900
Whalen, DE 99999	Date Prepared 2/2/85
	Signature of Preparer *(optional)*

Section II – Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	08HA PEL	ACGIH nv	Other Limits Recommended	% *(optional)*
Acet oxysilane	10 ppm*	10 ppm*		5

*Based on TLV for Acetic Acid which is liberated in curing.

Section III – Physical/Chemical Characteristics

Boiling Point	300°F	Specific Gravity (H_2O = 1)	1.05
Vapor Pressure (mm Hg.)	5	Melting Point	N/A
Vapor Density (AIR = 1)	N/A	Evaporation Rate (Butyl Acetate = 1)	1

Solubility in Water
0. 1g/100g

Appearance and Odor
Vinegar odor, colored paste

Section IV — Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	LEL	UEL
250°F (open cup)		UNK	UNK

Extinguishing Media
Class B

Special Fire Fighting Procedures
Use self contained breathing apparatus to protect against evolved acetic acid.

Unusual Fire and Explosion Hazards
None

Section V – Reactivity Data

Stability			conditions to Avoid
	Unstable		Air and moisture causes the material to polymerize.
	stable	x	Liberating acetic acid.

Incompatibility (Materials to Avoid)
Strong oxidizers can cause the material react, liberating acetic acid.

Hazardous Decomposition or Byproducts
Combustion: Carbon Monoxide 50 ppm; Carbon Dioxide 5000 ppm.

Hazardous Polymerization			Conditions to Avoid
	May Occur		N/A
	Will Not Occur	x	

Section VI - Health Hazard Data

Route(s) of Entry	Inhalation?	Skin?	Ingestion?
	YES	YES	NO

Health Hazards (Acute and Chronic)
ACUTE : Will irritate the eye and skin, causing reddening and burning due to acetic acid action. Irritation of the upper respiratory system (nose, throat) may occur if the product is applied over a large area. CHRONIC: None.

Carcinogenicity:	NTP?	IARC Monographs?	OSHA Regulated?
	NO	NO	NO

Sign and Symptoms of Exposure
Skin irritation, burning, eye irritation.

Medical Conditions Generally Aggravated by Exposure Bronchitis

Emergency and First Aid Procedures Promptly flush eyes with water for at least 15 minutes. Wash with water. Respiratory irritation is transient (short lived). Remove from exposure irritation occurs.

Section VII - Precautions for Safe Handling and Use

Steps to Be Taken in Case Material Is Released or Spilled
Soak up on absorbent material.

Waste Disposal Method
Dispose of as normal waste in accordance with state and federal relations.

Precautions to Be Taken in Handling and Storing
Store below 90°F. Exceesive heat could cause premature reaction (curing) and liberation of acetic acid.

Other Precautions

Section VIII - control Measures

Respiratory Protection (Specify Type)
Organic Vapor.

Ventilation	Local Exhaust	Special
	Not normally required	N/A
	Mechanical (General) Usually adequate	N/A

Protective Gloves	Eye Protection
Rubber or plastic recommended	Goggles

Other Protective Clothing or Equipment
N/A

Work/Hygienic Practices
N/A

Material Safety Data Sheet

May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements.

U.S. Department of Labor
Occupational Safety and Health Administration
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IDENTITY (As *used on Label and bat)*
Gasoline

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

Section I

Manufacturer's Nams **Some Oil Company**	Emergency Telephone Number **914-555-3400 X214**
Address *(timber. Street, City, State,* and *ZIP Code)* **100 Industrial Drive** Some City, TX 99999	Telephone Number for Information 914-555-3400 X570 Data Prepared November 20, 1987
	Signature of Preparer *(optional)*

Section II - Hazardous ingredients/Identlty Information

Hazardous Components (Specific Chemical Identity; Common Name(e))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% *(optional)*
Blend of Carbon 6 - Carbon 10		900 mg/m3		
Alipatic/paraf inic hydrocarbons				
BENZENE	1 ppm	10 ppm	0.8-2.0	
Organic Lead Compounds			varies	
Toluene	200 ppm	100 ppm		
Xylene	100 ppm	100 DDm		
Unleaded premium gasoline		300 ppm/500 ppm	short term exposure limit	

Section III — Physical/Chemical Characteristics

Boiling Point	90-410″F	Specific Gravity (H_2O = 1)	0.72-0.76
Vapor Pressure (mm Hg.)	400	- -	N/A
Vapor Density (AIR = 1)	3-4	Evaporation Rate (Butyl Acetate = 1)	1

Solubility m Water
Insoluble

Appearance and Odor
Pink liquid, aromatic odor

Section Iv — Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	LEL	UEL
40°F (tag closed)		1.4	7.6

Extinguishing Media Dry chemical, Carbon Dioxide, Foam, water fog (product will float and can be reignited on surface of water).

Special Fire Fighting Procedures Cool storage drums with water mist. Evacuate area. Prevent run-off from entering water supply. Do not enter confined space without appropriate Protective equipment.

Unusual Fire and Explosion Hazards Water may be ineffective on gasoline fires. Extremely flammable. Vapor accumulation could flash and/or explode.

Section V - Reactivity Data

Stability			Conditions to Avoid
	Unstable		Prevent vapor accumulation.
	stable	x	Heat, open flame, sparks and strong oxidizing agents.

Incompatibility (*Materials to Avoid*)
Oxidizers, acids, bases

Hazardous Decomposition or Byproducts
Carbon Dioxide, Carbon Monoxide and other unidentified organic compounds.

Hazardous Polymerization			Conditions to Avoid
	May Occur		
	Will Not Occur	X	

Section VI - Health Hazard Data

Route(s) of Entry:	Inhalation?	Skin?	Ingestion?
	YES	YES	YES

Health Hazards (*Acute and Chronic*) ACUTE: Irritation of eyes, nose and throat. May cause "drunkeness" if exposure is massive. Harmful or fatal, if swallowed.
CHRONIC : Vomiting, diarrhea, insomnia, headache, dizziness, anemia, muscle and nerve damage. Aplastic anemia and leukemia may be caused by Benzene content. Gasoline containing more than 0.1% Benzene must be labeled warning of the Benzene toxicity. Prolonged or repeated skin contact causes dermatitis.

Carcinogenicity:	NTP?	IARC Monographs?	OSHA Regulated?
	YES (Benzene 0.1%)	YES (Benzene 0.1%)	YES (Benzene 0.1%)

Signs and Symptoms of Exposure
Irritation of eyes, nose, throat, nausea, vomiting, diarrhea, insomnia, headache, giddiness, dizziness.

Medical Conditions Generally Aggravated by Exposure Nerve disease; eye, skin and respiratory disorders; impaired liver or kidney function.

Emergency and First Aid Procedures Remove overcome victim from the exposure. Begin artificial respiration, get medical attention. If skin and eyes are involved, flush with water immediately and for at *least* 15 minutes. Ingestion - do not induce vomiting.

Section VII - Precautions for Safe Handling and Use

Steps to Be Taken in Case Material is Released or Spilled Dike spill, soak up small spills with absorbent material. Eliminate all ignition sources. Remove leaking containers to detached area. Runoff may create fire or explosion hazard in sewer system. For major spills, get upwind and notify local emergency personnel.

Waste Disposal Method
May be incinerated. Product recovery or recycling recommended. Absorbent should be disposed of and as an ignitable hazardous waste.

Precautions to Be Taken in Handling and Storing *Store* away from heat, sparks and open flames. Keep away from oxidizers, acids, bases. Drums may be grounded and bonded and equipped with self closing valves.

other Precautions Gasoline may contain organic lead compounds. These will significantly increase the toxicity of gasoline. Lead poisoning has been the cause of death when gasoline was ingested. Do not siphon by mouth.

Section VIII - Control Measures

Respiratory Protection (*Specify Type*)
Organic vapor."

Ventilation			
	Local Exhaust	General ventilation. Use explosion proof ventilation to prevent vapor accumulation.	Special N/A
	Mechanical (General)	YES, explosion-proof.	Other N/A

Protective Gloves	Eye Protection
Impervious	Splash proof chemical safety goggles.

Other Protective Clothing or Equipment Use in well ventilated area away from ignition sources. Wash with soap and water after handling.

Work/Hygienic Practices

*U.S. Government Printing Office: 1987—181-504/64362

Material Safety Data Sheet

May be used to comply with OSHA's Hazard Communication Standard. 29 CFR 1910.1200. Standard must be consulted for specific requirements.

U.S. Department of Labor
occupational Safety' and Health Administration
(Non-Mandatory Form)
Form Approved
OMB No. 121 B-0072

IDENTITY *(As Used on Label and List)*
Stainless Steel Cleaner

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

Section I

Manufacturer's Name The Phone Corporation	Emergency Telephone Number 602-253-8805
Address (Number. Street. City, Stare, and ZIP Code) 111 West Main Street	Telephone Number for Information 602-991-6000
Phoenix, AZ 85111	oats Prepared 5/26187
	Signature of Preparer (optional)

section II — Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
Stainless Steel Cleaner	N/A	N/A		100
Sodium Linear Dodecylbenzene Sulfonate	N/A	N/A		
Sodium Silica Fluoride	2.5 mg/m3 (as fluoride dust)	2.5 mg/m3		
Sulfamic Acid	N/A	N/A		
Silica Flour	N/A	0.1 mg/m3 (resp. dust)		
Diatomaceous Earth	80 mg/m3 (7. Si02)	1.5 mg/m3 (resp. dust)		
Starch		5 mg/m3 (resp. dust)		

Section III - Physical/Chemical Characteristics

Boiling Point	N/A	Specific Gravity (H_2O = 1)	1.1
Vapor Pressure (mm Hg.)	N/A	Melting -	N/A
Vapor Density (AIR = 1)	N/A	Evaporation Rate (Butyl Acetate = 1)	N/A

Solubility in Water
Moderate

Appearance and Odor
Off-white abrasive powder with pleasant odor

Section Iv — Fire and Explosion Hazard Data

Flash Point (Method used) Nonflammable	Flammable Limits	LEL N/A	UEL N/A

Extinguishing Mess
Water or other media suitable for surrounding fire.

Special Fire Fighting Procedures Cool fire-exposed containers with water. Under extreme heat, use self-contained breathing apparatus. Wear Protective clothing.

Unusual Fire and Explosion Hazards Dry powdered material builds sr tic charge when subject to friction. Use with care around flammable liquids.

Section V - Reactivity Data

Stability	Unstable		Conditions to Avoid: Extreme heat
	Stable	X	

Incompatibility (*Materials to Avoid*): **Ammonia**, chlorine, nitric acid, hydrochloric acid, strong alka powerful oxidizers

Hazardous Decomposition or Byproducts: Sulfur Oxides, Toxic Fluorine Compounds, Carbon Monoxide, Ammonium bisulf ate

Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	X	

Section VI - Health Hazard Data

Route(s) of Entry: Inhalation? YES Skin? YES I * ?

Health Hazards (*Acute and Chronic*)

See Attachment

Carcinogenicity	NTP? No	IARC Monographs? No	OSHA Regulated? No

Signs and Symptoms of Exposure: Irritation of the upper respiratory tract and eyes. Symptome include coughing, dypsnea, sneezing, throat irritation. Skin cotact may produce irritation and drying.

Medical Conditions Generally Aggravated by Exposure: Impaired respiratory function.

Emergency and First Aid Procedures: Flush eyes and skin for at least15 minutes. Inhalation - remove to fresh air. continuted irritation or difficulty in breathing, get medical attention.

section VII — **Precautions for Safe Handling and Use**

Steps to Be Taken in Case Material is Released or Spilled: Sweep up and containerize. Vacuuming *or* wet sweeping may be used to avoid dust dispersed.

Waste Disposal Mathod: Dispose in accordance with federal and state regulations .

Precautions to Ss Taken in Handling and Storing: Store in cool dry ventilated area. Protect against physical damage wash thoroughly after handling.

Other Precautions: Prevent dust suspension.

section VIII - control Measures

Respiratory Protection (*Specify Type*): NIOSH-approved Dust Respirator

Ventilation	Local Exhaust: Preferred, if silica dust exposure high	Special: N/A
	Mechanical (*General*): See above	Other: N/A

Protective Gloves: General purpose

Eya Protection: Safety goggles

Other Protective Clothing or Equipment: Lab coats. uniforms or overalls

Work/Hygienic Practices: Launder soiled clothing.

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Material Safety Data Sheet

May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements.

U.S. Department of Labor
Occupational Safety and Health Administration
(Non -Mandatory Form)
Form Approved
OMB No. 1218-0072

IDENTITY (As Used on Label and List)	Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.
STEEL ALLOYS	

Section I

Manufacturer's Name A Steel Company	Emergency Telephone Number 213-555-1111
Address (Number, Street, City, stats, end 21P Code) 189 Eighth Street	Telephone Number tor Information 213-555-5307
Sometown, MI 99999	Date Prepared 12/12/85
	Signature of Preparer (optional)

Section II - Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
Iron	10 mg/m3	5 mg/m3	As Iron Oxide	90-100
Carbon	3.5 mg/m3			.01-1.5
Chromium	0.5 mg/m3	0.5 mg/m3 (soi salts)		.01-12
Manganese	5 mu /m3 (ceilIns)	5 mg/m3	(as dust ceiling)	.05-2.0
Nickel	1 mg/m3 (ceiling)	1 mg/m3		01-10
Lead	0.05 mg/m3	0.15 mg/m3	(dust & fume)	.15-.35
Tungsten	--	--		0-18

Section III — Physical/Chemical Characteristics

Boiling Point	5000°F	Specific Gravity (H_2O = 1)	7.8-8.2
Vapor Pressure (mm Hg.)	N/A	- -	Approx. 2500°F
vapor Density (AIR = 1)	N/A	Evaporation Rate (Butyl Acetate = 1)	N/A

Solubility in Watw
Insoluble

Appearance and Odor
Gray - Black metal, odorless

Section Iv — Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	LEL	UEL
N/A - not combustible		N/A	N/A

Extinguishing Media
N/A

Special Fire Fighting Procedures
N/A

Unusual Fire and Explosion Hazards
N/A

(Reproduce locally)

OSHA 174. Sept. 1985

STEEL ALLOYS

Section V - Reactivity Data

Stability			
	Unstable		Conditions to Avoid
	stable	x	None

Incompatibility (*Materials to Avoid*)
Reacts with strong acides to liberate explosive hydrogen gas

Hazardous Decomposition or Byproducts
Metallic oxides

Hazardous Polymenzation			
	May Occur		Conditions to Avoid N/A
	Will Not Occur	x	

Section VI - Health Hazard Date

Route(s) of Entry	Inhalation?	Skin?	Ingestion?
	YES	NO	YES

Health Hazards (Acute arm *Chronic*) ACUTE : Inhalation of fumes may result in chill and fever for 12 to 48 hours.. Metal fume fever - metallic taste, throat irritation and flu-like symptoms. CHRONIC : Chromium manganfumes may cause lung disease, lead fumes can carnage kidneys and affect smuscle strength.

Carcinogenicity:	NTP?	IARC Monographs?	Regulated?
	YES - nickel & chromium	YES - nickel & chromium	NO

Signs and Symptoms of Exposure
Dust, welding fumes: Metallic taste; nausea: tightness of chest, fever, irritation of eyes, nose, throat and skin.

Medical Conditions Generally Aggravated by Exposure Chronic lung disease; allergic conditions.

Emergency and First Aid Procedures
Dust, welding fumes: Remove to fresh air. Eye/skin contact: Flush with water.

Section VII — Precautions for Safe Handling and Use

Steps to Be Taken in Case Material Is Released or Spilled
Chips and dust should be swept up and placed in suitable container.

Waste Disposal Method
Dispose of as hazardous waste: follow applicable regulations.

Precautions to Be Taken in Handling and Storing
Use good housekeeping tominimize particle accumulation.

Other Precautions
Ventilate welding, brazing, burning and grinding operations.

Section VIII — Control Measures

Respiratory Protection (*Specify Type*)
Dust/fume respirator.

Ventilation		
	Local Exhaust Required for welding, grinding operations.	Special N/A
	Mechanical (*General*) N/A	Other N/A

Protective Gloves	Eye Protection
As needed based on operation	As needed

Other Protective Clothing or Equipment
Maybe needed for grinding, welding, etc.

Work/Hygienic Practices
N/A

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