



Paragraphs FIVE through TWENTY-ONE herein by providing information for, participating in the preparation of, paying for, and reviewing and/or approving Sierra antifreeze advertising and promotional materials, including but not limited to the attached Exhibits A through G. In addition, respondent ARCO Chemical has itself disseminated advertisements under its own name for propylene glycol-based antifreeze generally, including but not limited to the attached Exhibit H. Respondents Safe Brands and Warren Distribution have also disseminated ARCO Chemical advertisements for propylene glycol-based antifreeze generally, including but not limited to the attached Exhibit H.

PARAGRAPH FOUR: The acts and practices of respondents alleged in this complaint have been in or affecting commerce, as "commerce" is defined in Section 4 of the Federal Trade Commission Act.

PARAGRAPH FIVE: Respondents have disseminated or have caused to be disseminated advertisements, including television advertisements, product labeling, and other promotional materials, for Sierra antifreeze, and propylene glycol-based antifreeze generally, including but not necessarily limited to the attached Exhibits A through H. These advertisements contain the following statements and depictions:

- A. If you care about this big beautiful world, show me.  
*Depiction of clouds, sky, trees.*  
Don't give me another toxic antifreeze.  
Give me something different. *Depiction of containers of Sierra antifreeze.*  
Don't just tell me it protects to seventy below. And guards against rust.  
Any antifreeze can do that. *Depiction of sunlight through the trees.*  
Tell me it's safer.  
For my dog. *Depiction of dog and car.*  
My family. *Depiction of father with child and mother in background.*  
The kids. *Depiction of family walking together holding hands.*  
Tell me nothing protects better.  
And it's biodegradable. *Depiction of a field with flowers.*  
That's what I want to know. *Depiction of body of water with green plants in foreground.*  
That's what I want to hear.  
New Sierra. It's not just antifreeze. Super: It's not just Antifreeze.  
It's safety freeze. *Depiction of adult holding little girl.*  
Super: It's Safety Freeze.™

(Exhibit A, television advertisement).

- B. *Depiction of house with sky and trees in background.*  
They care about the world these days. They just don't want me to put another toxic antifreeze in their car. I mean, who needs toxic. *Depiction of girl on tire swing.*  
So what if it protects to seventy below. *Depiction of tree branches.*  
Any antifreeze can do that. Tell me it's different. *Depiction of container of Sierra antifreeze.*  
Safer. *Depiction of little girl with dog.*  
Tell me nothing protects better. *Depiction of boy looking under car hood as man pours Sierra into car radiator.*  
*Depiction of woman with girl and dog.*  
And it's biodegradable. *Depiction of lake and trees.*  
I mean, what if their dog gets into it? *Depiction of dog with man by garage.*  
Or their kids? *Depiction of little girl with a barrel.*  
This is serious. *Depiction of little girl looking into barrel.*  
It's a changing world. Poison's out.  
New Sierra. It's not just antifreeze. Super: It's not just Antifreeze.  
It's safety freeze. *Depiction of little girl with cat.*  
Super: It's Safety Freeze.™

(Exhibit B, television advertisement).

- C. *Depiction of man and boy working on car.*  
People care these days. They just don't want me to put another toxic antifreeze in their car. I mean, who needs something that toxic. *Depiction of girl on tire swing.*  
So what if it protects to seventy below. *Depiction of man and boy working on car.*  
Any antifreeze can do that. Give me something different. *Depiction of container of Sierra antifreeze.*  
Something safer. *Depiction of little girl with dog.*  
That's essentially non-toxic. *Depiction of dog with bucket of clear liquid.*  
I mean, what if their dog gets into it? *Depiction of dog with man by garage.*  
Or their kids? *Depiction of girl and woman with dog.*  
This is serious. *Depiction of family with dog.*  
Sierra. Its not just antifreeze. Super: Parents: Store safely. Not for drinking.  
It's safety freeze. *Depiction of girl with cat.* Super: It's Safety Freeze.™ Parents: Store safely. Not for drinking.

(Exhibit C, television advertisement).

D.1. S I E R R A  
Antifreeze ■ Coolant

- ▲ Essentially Non Toxic
- ▲ Safer For People & Pets
- ▲ Superior Engine Protection

. . .

**B I O D E G R A D A B L E**

(Exhibit D.1, former product label - front).

Exhibit D.1 also included on the front a product logo that included the statement "ENVIRONMENTALLY SAFER" and depicted trees, mountains, water, and sky.

D.2. **THE ULTIMATE IN AUTOMOTIVE PROTECTION AND ENVIRONMENTAL SAFETY**

**ULTIMATE AUTOMOTIVE PROTECTION:**

SIERRA protects cars from freeze-ups during the harshest winter conditions and from boil-overs in extreme summer temperatures. . . .

**ESSENTIALLY NON-TOXIC,  
ENVIRONMENTALLY SAFER**

SIERRA's essentially non-toxic formula guards against poisonings of children and pets. All other leading brands of antifreeze contain ethylene glycol which is highly toxic.

SIERRA is naturally biodegradable and is converted to harmless components in activated treatment systems.

. . . However, mixing SIERRA with ethylene glycol antifreeze eliminates the toxicity and performance advantages of SIERRA.

. . .

**SIERRA contains propylene glycol and although it is not "toxic" as defined by the regulations of the Consumer Product Safety Commission at 16 CFR1500.3(c)(2), it is not for human consumption and should be kept out of reach of children.**

(Exhibit D.2., former product label - back).

Exhibit D.2 also included on the back the statement "Recyclable Plastic Container" below a depiction of a three chasing arrow symbol.

E.1. S I E R R A.  
Antifreeze ■ Coolant

- ▲ Essentially Non Toxic  
To People & Pets

S A F E T Y F R E E Z E.

(Exhibit E.1., subsequent product label - front).

Exhibit E.1. also includes on the front a product logo that includes the statement "SAFER PROTECTION" and depicts a man, a girl, a dog, and a bird.

E.2. SAFER AND PHOSPHATE FREE - SIERRA PROTECTS YOUR FAMILY . . .

**ENVIRONMENTAL BENEFITS**

- **Toxicity** -- Because it is essentially non toxic, SIERRA is safer for people, pets, and wildlife in the environment than other leading brands. Many poisonings of animals are caused by their drinking conventional antifreeze that has spilled or leaked from cars. SIERRA greatly reduces this risk.
- **Biodegradability** -- Sierra biodegrades readily in the natural environment, and in activated sewage treatment systems as may other brands. All antifreeze can become contaminated with trace amounts of lead or other metals and should be disposed of properly and in accordance with local regulations. Even if contaminated with trace metals, used SIERRA is far less poisonous to animal life than conventional antifreeze.
- **Recyclability** -- Used SIERRA can be mixed with conventional antifreeze in collection systems and recycling processes! This SIERRA container . . . can be further recycled. Recycling may not be available in all areas.

**CAUTIONARY INFORMATION**

SIERRA contains propylene glycol and although it is not "toxic" as defined by the regulations of the Consumer Product Safety Commission, **SIERRA is NOT INTENDED FOR HUMAN OR ANIMAL CONSUMPTION** so:  
**KEEP OUT OF REACH OF CHILDREN.**

(Exhibit E.2., subsequent product label - back).

F. **Safety & Environmental Advantages**

**ANTIFREEZE - A TOXIC PROBLEM**

**SIERRA - THE SAFER ANTIFREEZE**

With its mission being to develop effective but environmentally safer products for the automotive market, Safe Brands Corporation initiated research to find a non-toxic, environmentally safer alternative to existing EG based antifreeze brands. We discovered that it was possible to formulate a highly effective, heavy duty antifreeze from essentially non-toxic components -- completely omitting ethylene glycol. The results of this research is SIERRA -- The Safer Antifreeze.

Sierra is formulated with propylene glycol. Unlike EG, propylene glycol (PG) is safe. It is so safe that it is used in the formulation of many consumer products such as cosmetics including lipstick and medicines such as Children's Tylenol. It is also a key moisturizing ingredient used in . . . pet foods. Pharmaceutical grade PG has received a "generally recognized as safe" designation from the Food and Drug Administration. . . .

**SIERRA IS BIODEGRADABLE**

PG does not persist in the environment. It is readily consumed by microorganisms. In addition to its natural biodegradability, it is fully degraded within 24 hours in activated sludge treatment plants operating at 65°F.

**Performance Advantages**

**COOLING SYSTEM PERFORMANCE ADVANTAGES OF SIERRA**

**SUPERIOR FREEZE PROTECTION**

. . . Unlike EG based antifreeze solutions which begin expanding soon after their initial freezing point is reached, SIERRA solutions do not begin to expand until the temperature becomes considerably lower than the initial freezing point. This characteristic of SIERRA adds a margin of safety against the expansion breakage of engines and cooling systems components.

**SUPERIOR CORROSION PROTECTION**

. . . In a paper presented at the 1990 Society of Automotive Engineers (SAE) Convention in Detroit, representatives of Cummins Engine Fleetguard Division and Arco Chemical Company presented data which demonstrated the superior corrosion

protection characteristics of propylene glycol over ethylene glycol based coolants.

(Exhibit F, former neck tag pamphlet).

- G. *Depiction of products including Dolly Madison Bakery Zingers, Wyler's Bouillon Cubes, Vicks Children's NyQuil, Infant's Tylenol, Chubs Baby Wipes, Maybelline Great Lash Mascara, ALPO Beef Jerky Bits, and Ken-L Ration Kibbles 'n Bits.*

In addition to consumer safety, these trusted products have one thing in common...

They all contain propylene glycol.

So does...

*Depiction of the front of a Sierra antifreeze container including the statements, "Essentially Non Toxic," "Safer For People & Pets," "Superior Engine Protection," "BIODEGRADABLE," and "ENVIRONMENTALLY SAFER" and the depiction of trees, mountains, water, and sky.*

It's Not Just Antifreeze.  
It's Safety Freeze.

(Exhibit G, promotional material).

#### H. **PG Antifreeze Safety and Environmental Advantages**

Although EG is effective as a car and truck antifreeze, it is toxic to humans and animals if ingested. EG is metabolized to oxalic acid, which crystallizes in the kidney, causing death.

##### **There Is A Safer Alternative...**

PG has received a "generally recognized as safe" designation from the Food and Drug Administration. PG has been used safely for many years as an ingredient in foods, cosmetics, and medicinal products.

...

##### **Pet and Animal Exposure**

Dogs and cats are naturally attracted to EG because of its sweet taste and smell, but EG-based antifreeze can be lethal to pets and other animals if ingested. . . . By contrast, PG is harmless. In fact, it is used as a moisturizing ingredient in many pet foods.

EG also can be toxic to poultry. PG on the other hand is used in many animal feed formulations to keep the feed moist and palatable.

**Biodegradability**

PG does not persist in the environment. It is readily consumed by microorganisms. In an activated sludge treatment plant operating at 65 degrees Fahrenheit, PG is fully degraded within 24 hours.

(Exhibit H, promotional material).

PARAGRAPH SIX: Through the use of the statements and depictions contained in the advertisements referred to in PARAGRAPH FIVE, including but not necessarily limited to the advertisements attached as Exhibits A, B, D, E, F, G, and H, respondents have represented, directly or by implication, that:

- a. Compared to conventional, ethylene glycol-based antifreeze, Sierra antifreeze, and other propylene glycol-based antifreezes, are safer for the environment generally;
- b. Sierra antifreeze, and other propylene glycol-based antifreezes, are absolutely safe for the environment after ordinary use; and
- c. Because Sierra antifreeze, and other propylene glycol-based antifreezes, are biodegradable, they are absolutely safe for the environment after ordinary use.

PARAGRAPH SEVEN: Through the use of the statements and depictions contained in the advertisements referred to in PARAGRAPH FIVE, including but not necessarily limited to the advertisements attached as Exhibits A, B, D, E, F, G, and H, respondents have represented, directly or by implication, that at the time they made the representations set forth in PARAGRAPH SIX, respondents possessed and relied upon a reasonable basis that substantiated such representations.

PARAGRAPH EIGHT: In truth and in fact, at the time respondents made the representations set forth in PARAGRAPH SIX, while they possessed and relied upon a reasonable basis to substantiate that when compared to conventional, ethylene glycol-based antifreeze, Sierra antifreeze, and other propylene glycol antifreezes, are less toxic, and therefore safer for that part of the environment that is composed of humans, pets, and wildlife that may accidentally ingest it, respondents did not possess and rely upon a reasonable basis to substantiate that (a) compared to

conventional, ethylene glycol-based antifreeze, Sierra antifreeze, or other propylene glycol-based antifreezes, are safer for the environment generally, e.g., the air, water, soil, plants, or aquatic life; or (b) Sierra antifreeze, or other propylene glycol-based antifreezes, are absolutely safe for the environment after ordinary use; or (c) because Sierra antifreeze, and other propylene glycol-based antifreezes, are biodegradable, they are absolutely safe for the environment after ordinary use. One reason for this is that used antifreeze, whether ethylene glycol-based or propylene glycol-based, may contain lead and/or other substances that are hazardous to the environment. Therefore, the representation set forth in PARAGRAPH SEVEN was, and is, false and misleading.

PARAGRAPH NINE: Through the use of the statements and depictions contained in the advertisements referred to in PARAGRAPH FIVE, including but not necessarily limited to the advertisements attached as Exhibits A through H, respondents have represented, directly or by implication, that:

- a. Sierra antifreeze, and other propylene glycol-based antifreezes, are absolutely safe for people and pets; and
- b. Because Sierra antifreeze, and other propylene glycol-based antifreezes, contain the same ingredient designated by the FDA as "generally recognized as safe" and found in foods, drugs, cosmetics, and pet foods, they are absolutely safe for people and pets.

PARAGRAPH TEN: Through the use of the statements and depictions contained in the advertisements referred to in PARAGRAPH FIVE, including but not necessarily limited to the advertisements attached as Exhibits A through H, respondents have represented, directly or by implication, that at the time they made the representations set forth in PARAGRAPH NINE, respondents possessed and relied upon a reasonable basis that substantiated such representations.

PARAGRAPH ELEVEN: In truth and in fact, at the time respondents made the representations set forth in PARAGRAPH NINE, while they possessed and relied upon a reasonable basis to substantiate that when compared to conventional, ethylene glycol-based antifreeze, Sierra antifreeze, and other propylene glycol-based antifreezes, are less toxic and therefore safer for people and pets if accidentally ingested, respondents did not possess and rely upon a reasonable basis to substantiate that Sierra antifreeze, or other propylene glycol-based antifreezes are absolutely safe for people and pets. Therefore, the

representation set forth in PARAGRAPH TEN was, and is, false and misleading.

PARAGRAPH TWELVE: Through the use of the statements contained in the advertisements referred to in PARAGRAPH FIVE, including but not necessarily limited to the advertisements attached as Exhibits D, F, and G, respondents have represented, directly or by implication, that compared to conventional, ethylene glycol-based antifreeze, Sierra antifreeze provides superior automotive protection from freezing temperatures, boil-overs, and corrosion.

PARAGRAPH THIRTEEN: Through the use of the statements contained in the advertisements referred to in PARAGRAPH FIVE, including but not necessarily limited to the advertisements attached as Exhibits D, F, and G, respondents have represented, directly or by implication, that at the time they made the representation set forth in PARAGRAPH TWELVE, respondents possessed and relied upon a reasonable basis that substantiated such representation.

PARAGRAPH FOURTEEN: In truth and in fact, at the time they made the representation set forth in PARAGRAPH TWELVE, respondents did not possess and rely upon a reasonable basis that substantiated that when compared to conventional, ethylene glycol-based antifreeze, Sierra antifreeze provides superior automotive protection from freezing temperatures, boil-overs, and corrosion. Therefore, the representation set forth in PARAGRAPH THIRTEEN was, and is, false and misleading.

PARAGRAPH FIFTEEN: Through the use of the statements contained in the advertisements referred to in PARAGRAPH FIVE, including but not necessarily limited to the advertisement attached as Exhibit E, respondents have represented, directly or by implication, that Sierra antifreeze is recyclable.

PARAGRAPH SIXTEEN: In truth and in fact, while Sierra antifreeze is capable of being recycled, the vast majority of consumers cannot recycle it because there are few collection facilities nationwide that will accept propylene glycol-based antifreeze for recycling. Therefore, the representation set forth in PARAGRAPH FIFTEEN was, and is, false and misleading.

PARAGRAPH SEVENTEEN: Through the use of the statements and depictions contained in the advertisements referred to in PARAGRAPH FIVE, including but not necessarily limited to the

advertisements attached as Exhibits D and E, respondents have represented, directly or by implication, that the container in which Sierra antifreeze is sold is recyclable.

PARAGRAPH EIGHTEEN: In truth and in fact, while the plastic container in which Sierra antifreeze is sold is capable of being recycled, the vast majority of consumers cannot recycle it because there are few collection facilities nationwide that will accept high-density polyethylene plastic antifreeze containers for recycling. Therefore, the representation set forth in PARAGRAPH SEVENTEEN was, and is, false and misleading.

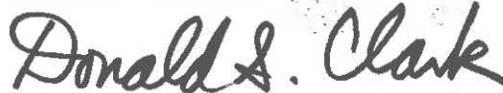
PARAGRAPH NINETEEN: Through the use of the statements and depictions contained in the advertisements referred to in PARAGRAPH FIVE, including but not necessarily limited to the advertisements attached as Exhibits D and E respondents have represented, directly or by implication, that at the time they made the representations set forth in PARAGRAPHS FIFTEEN and SEVENTEEN, respondents possessed and relied upon a reasonable basis that substantiated such representations.

PARAGRAPH TWENTY: In truth and in fact, at the time they made the representations set forth in PARAGRAPHS FIFTEEN and SEVENTEEN, respondents did not possess and rely upon a reasonable basis that substantiated such representations. Therefore, the representation set forth in PARAGRAPH NINETEEN was, and is, false and misleading.

PARAGRAPH TWENTY-ONE: The acts and practices of respondents as alleged in this complaint constitute unfair or deceptive acts or practices in or affecting commerce in violation of Section 5(a) of the Federal Trade Commission Act.

Therefore, the Federal Trade Commission this twenty-sixth day of March, 1996, has issued this complaint against respondents.

By the Commission, Commissioner Starek recused.



Donald S. Clark  
Secretary

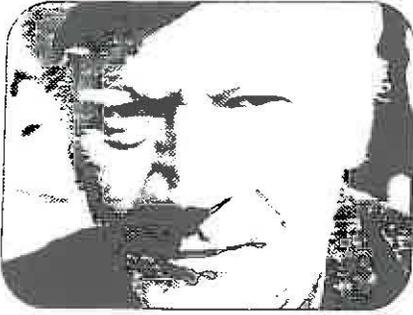
SEAL

# RADIO TV REPORTS

41 East 42nd Street, New York, NY 10017 (212) 309-1400

PRODUCT: SIERRA ANTIFREEZE  
TITLE: "ENVIRONMENTALLY SAFE"  
PROGRAM: NOTRE DAME FOOTBALL  
STATION: NBC

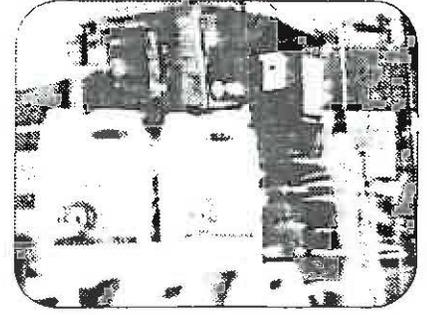
93-10423  
09/19/93 :30  
(NEW YORK) 1:56PM



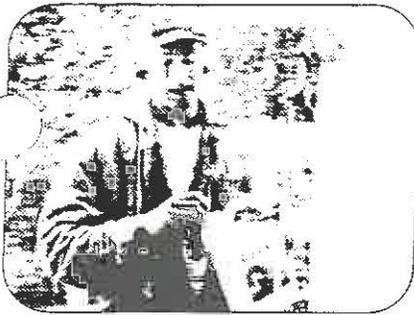
(MUSIC) 1st MAN: If you care about this big beautiful world show me.



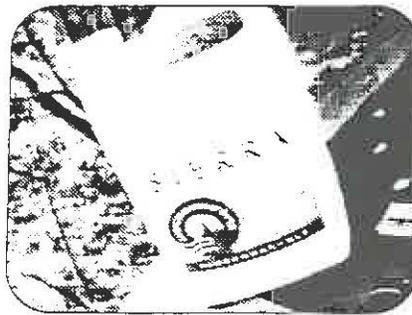
WOMAN: Don't give me another toxic antifreeze. 2nd MAN: Give me something



different.



3rd MAN: Don't just tell me how it protects to seventy below.  
WOMAN: And guards against rust.



(MUSIC)



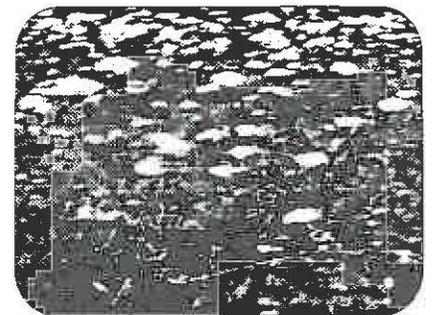
2nd MAN: Any antifreeze can do that.



1st MAN: Tell me it's safer for



my dog, my family. The kids.  
WOMAN: Tell me nothing protects better.



1st MAN: And its biodegradable.



WOMAN: That's what I want to know. 2nd MAN: That's what I want to hear.



MALE ANNCR: New Sierra it's not just antifreeze



it's safety freeze. (MUSIC OUT)

## Exhibit A

### ALSO AVAILABLE IN COLOR VIDEO-TAPE CASSETTE

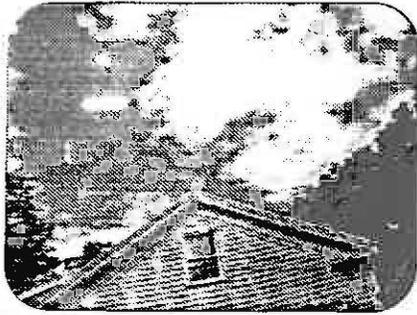
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# RADIO TV REPORTS

41 East 42nd Street, New York, NY 10017 (212) 309-1400

PRODUCT: SIERRA ANTIFREZE  
TITLE: "MECHANIC USING SIERRA"  
PROGRAM: NFL FOOTBALL  
STATION: TNT

9/19/93  
(NEW YORK)



(MUSIC) MAN: They care about the world these days.



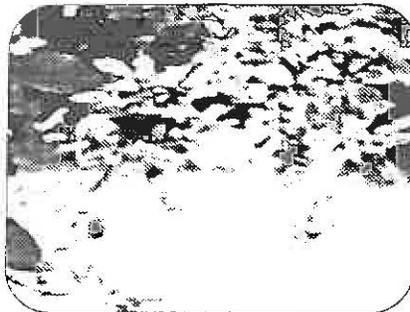
They just don't want me to put another toxic antifreeze



in their car.



I mean, who needs toxic?



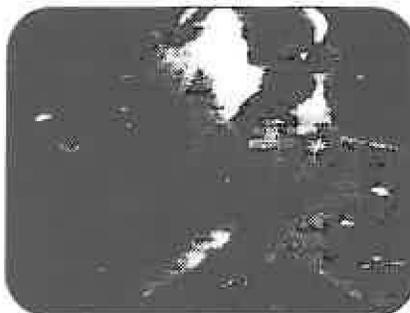
So what if it protects to 70 below; any antifreeze can do that.



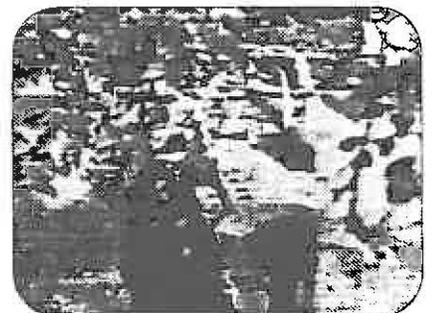
Tell me that it's different, safer. Tell me nothing protects better



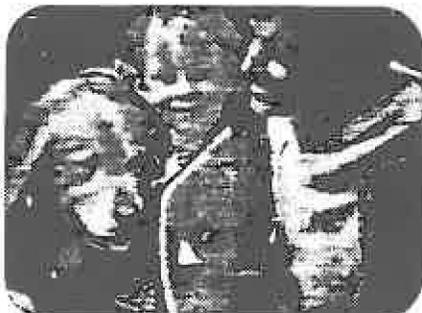
and it's biodegradable.



I mean, what if their dog gets into it,



or their kids? This is serious.



It's a changing world. Poison's out.



ANNCR: New Sierra. It's not just antifreeze.



it's safety freeze. (MUSIC OUT)

## Exhibit B

### ALSO AVAILABLE IN COLOR VIDEO-TAPE CASSETTE

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# RADIO TV REPORTS

41 East 42nd Street, New York, NY 10017 (212) 309-1400

PRODUCT: SIERRA ANTIFREEZE  
TITLE: "PEOPLE CARE THESE DAYS"  
PROGRAM: NOTRE DAME FOOTBALL  
STATION: NBC  
REVISION OF COMMERCIAL 93-10469

94-12730 EI

:30  
3:10PM



(MUSIC)



LARRY: People care these days.



They just don't want me to put another toxic antifreeze in their car.



I mean, who needs something that toxic?



So what if it protects to 70 below?



Any antifreeze can do that.



Give me something different, something safer that's essentially non-toxic.



I mean, what if their dog gets into it?



Or their kids?



This is serious.



ANNCR: Sierra. It's not just antifreeze.



It's safety freeze. (MUSIC OUT)

## Exhibit C

### ALSO AVAILABLE IN COLOR VIDEO-TAPE CASSETTE

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# SIERRA

*Antifreeze · Coolant*

	▲ <i>Essentially Non Toxic</i>
	▲ <i>Safer For People &amp; Pets</i>
	▲ <i>Superior Engine Protection</i>
<b>BIODEGRADABLE</b>	



**6 YEAR • 60,000 MILE**  
Newer Car Cooling System • Limited  
**WARRANTY**

PEI OPEN  
FOR DETAILS  
INTEG

# SIERRA<sup>®</sup>

*Antifreeze • Coolant*



- ▲ *Essentially Non Toxic To People & Pets*
- ▲ *Helps Protect Wildlife In The Environment*
- ▲ *Outstanding Engine Protection*

**SAFETY FREEZE<sup>™</sup>**

**SAFER AND PHOSPHATE FREE - SIERRA PROTECTS YOUR FAMILY AND YOUR CAR COOLING SYSTEM BENEFITS**

In addition to quality freeze up and boil over protection, SIERRA contains no phosphates and provides outstanding cooling system corrosion protection. SIERRA passes the ASTM D 5216 tests for propylene glycol coolants and the key performance requirements of ASTM D 3306.

SIERRA meets many important car maker requirements including the Ford Dynamometer BL2-2 test and ASTM D 1384, D 2570, D 2809 and D 4340 tests specified in GM's standards GM 1825M and GM 1899M. No conventional antifreeze prevents corrosion better.

**ENVIRONMENTAL BENEFITS**

- **Toxicity** - Because it is essentially non toxic, SIERRA is safer for people, pets and wildlife in the environment than other leading brands. Many poisonings of animals are caused by their drinking conventional antifreeze that has spilled or leaked from cars. SIERRA greatly reduces this risk.
- **Biodegradability** - SIERRA biodegrades readily in the natural environment and in activated sewage treatment systems as may other brands. All antifreeze can become contaminated with trace amounts of lead or other metals and should be disposed of properly and in accordance with local regulations. Even if contaminated with trace metals, used SIERRA is far less poisonous to animal life than conventional antifreeze.
- **Recyclability** - Used SIERRA can be mixed with conventional antifreeze in collection systems and recycling processes. This SIERRA container contains at least 25% recycled plastic and can be further recycled. Recycling may not be available in all areas.

**INSTALLATION**

Install SIERRA like any antifreeze, being careful not to remove the radiator cap when engine is hot. While SIERRA is compatible with conventional antifreeze, its safety benefit is eliminated if mixed, so thoroughly flush out old coolant with water. As not all fluid will drain from a cooling system, check car owners manual for system capacity to determine the proper amount of SIERRA to install to achieve desired protection.

SIERRA	Water	Protects against freeze-ups down to	Protects against boil-overs up to*
50%	50%	-26°F	256°F
60%	40%	-54°F	281°F
67%	33%	-76°F	262°F

\*14 psi radiator cap

To maintain optimum corrosion protection, replace SIERRA annually

**TESTING SIERRA COOLANT**

SIERRA freeze point protection cannot be measured with conventional antifreeze testers. SIERRA testers are available from SIERRA retailers or may be purchased from Safe Brands at the address below.

**CAUTIONARY INFORMATION**

SIERRA contains propylene glycol and although it is not "toxic" as defined by regulations of the Consumer Product Safety Commission, SIERRA is NOT INTENDED FOR HUMAN OR ANIMAL CONSUMPTION so:

**KEEP OUT OF REACH OF CHILDREN.**

Part No. 091

Do not store in open or unlabeled containers.

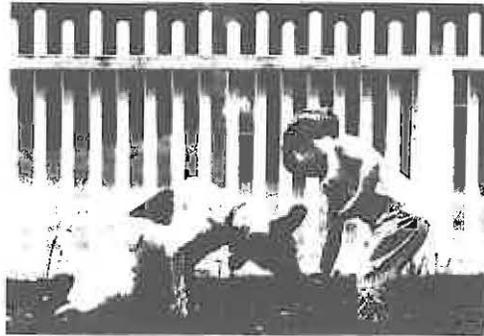


Safe Brands Corporation  
P.O. Box 3007  
Omaha, NE 68103  
800-289-7234

# SIERRA™

Antifreeze

THE SAFER ONE



## Safety & Environmental Advantages

### ANTIFREEZE — A TOXIC PROBLEM

Each year there are over 200 million gallons of toxic antifreeze purchased, installed and disposed of in the United States. This antifreeze is manufactured with ethylene glycol (EG) and includes all major brands such as Prestone, Peak, Zerex and Texaco. Although EG based antifreeze provides freeze protection for automobiles, it has a serious environmental drawback because it is highly toxic to people and animals. The danger of such EG based antifreeze is magnified by its sweet taste to which children and animals are attracted. Each year a significant number of children and pets are poisoned by antifreeze and require emergency medical treatment for antifreeze ingestion.

Household pets and wild animals are attracted to drinking the sweet tasting pools of antifreeze formed by drippings from the coolant overflow tubes of cars and trucks as well as to pools of improperly disposed of used antifreeze. Many are poisoned each year. The Colorado State University, Veterinary Hospital reported that more than 50 percent of all poisoning deaths of dogs and cats were caused by antifreeze. The lethal dose of EG is as little as 1.4 teaspoon for cats and 2 tablespoons for a child weighing 50 pounds.

The toxicity of EG has led two of the most environmentally concerned European countries, Switzerland and Austria, to restrict consumer sales of EG based antifreeze.



### SIERRA — THE SAFER ANTIFREEZE

With its mission being to develop effective but environmentally safer products for the automotive market, Safe Brands Corporation initiated research to find a non-toxic, environmentally safer alternative to existing EG based antifreeze brands. We discovered that it was possible to formulate a highly effective, heavy duty antifreeze from essentially non-toxic components — completely omitting ethylene glycol. The results of this research is SIERRA — The Safer Antifreeze.

SIERRA is formulated with propylene glycol. Unlike EG, propylene glycol (PG) is safe. It is so safe that it is used in the formulation of many consumer products such as cosmetics including lipstick and medicines such as Children's Tylenol. It is also a key moisturizing ingredient used in tobacco products and pet foods. Pharmaceutical grade PG has received a "generally recognized as safe" designation from the Food and Drug Administration. The United States Occupational Safety and Health Administration (OSHA) has established an upper exposure limit of 50 parts per million for EG. OSHA has not found it necessary to set an exposure limit for PG because of its inherent low toxicity.

### SIERRA IS BIODEGRADABLE

PG does not persist in the environment. It is readily consumed by microorganisms. In addition to its natural biodegradability, it is fully degraded within 24 hours in activated sludge treatment plants operating at 65° F.



## Performance Advantages

### COOLING SYSTEM PERFORMANCE ADVANTAGES OF SIERRA

#### SUPERIOR FREEZE PROTECTION

A 50/50 blend of SIERRA and water has a freezing point of -27° F, more than enough protection for most regions. If lower temperature protection is required, it can readily be attained by increasing the concentration of SIERRA — for example a 66/34 blend of SIERRA and water gives antifreeze protection to -76° F.

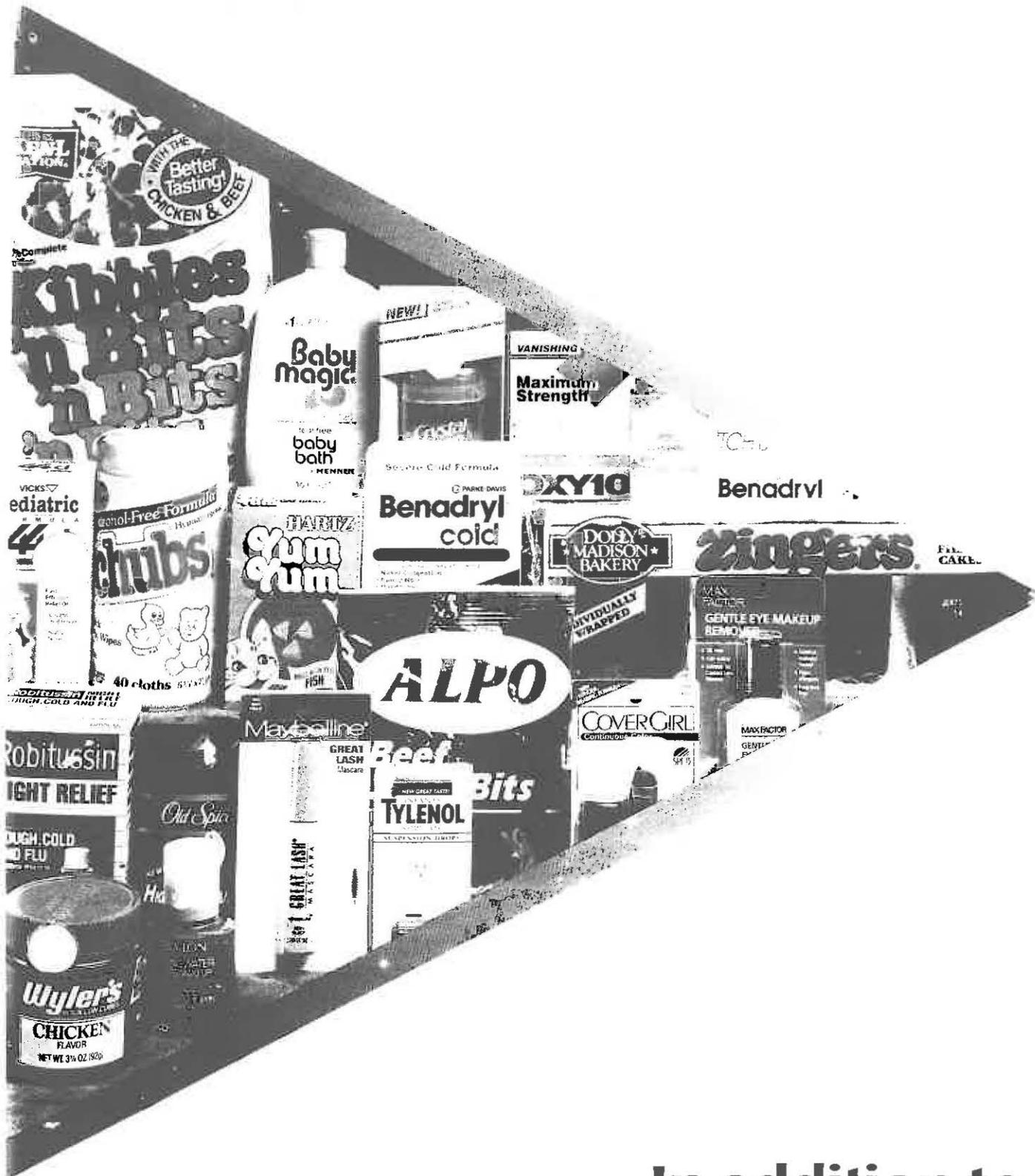
Unlike EG based antifreeze solutions, which begin expanding soon after their initial freezing point is reached, SIERRA solutions do not begin to expand until the temperature becomes considerably lower than the initial freezing point. This characteristic of SIERRA adds a margin of safety against the expansion breakage of engines and cooling systems components.

Sierra	Water	Freeze Point (Point at which 1st Ice Crystals Form)	Pour Point (Point at which Solution Turns Solid)
40%	60%	-4° F	-60° F
50%	50%	-27° F	-72° F
60%	40%	-54° F	-100° F
66%	34%	-76° F	-107° F

#### SUPERIOR CORROSION PROTECTION

SIERRA has passed the automotive industry's most demanding corrosion tests including those of ASTM D 3306 and General Motors specification GM 1399M. It provides corrosion protection to all cooling system components including aluminum, copper, cast iron, steel and solder. Additionally, SIERRA'S propylene glycol base had been shown to reduce cavitation corrosion in Heavy Duty Diesel engines common with ethylene glycol based coolants. In a paper presented at the 1990 Society of Automotive Engineers (SAE) Convention in Detroit, representatives of Cummins Engine Fleetguard Division and Arco Chemical Company presented data which demonstrated the superior corrosion protection characteristics of propylene glycol over ethylene glycol based coolants.





**In addition to  
consumer safety,  
these trusted products  
have one thing in common . . .**

**They all contain  
propylene glycol.**

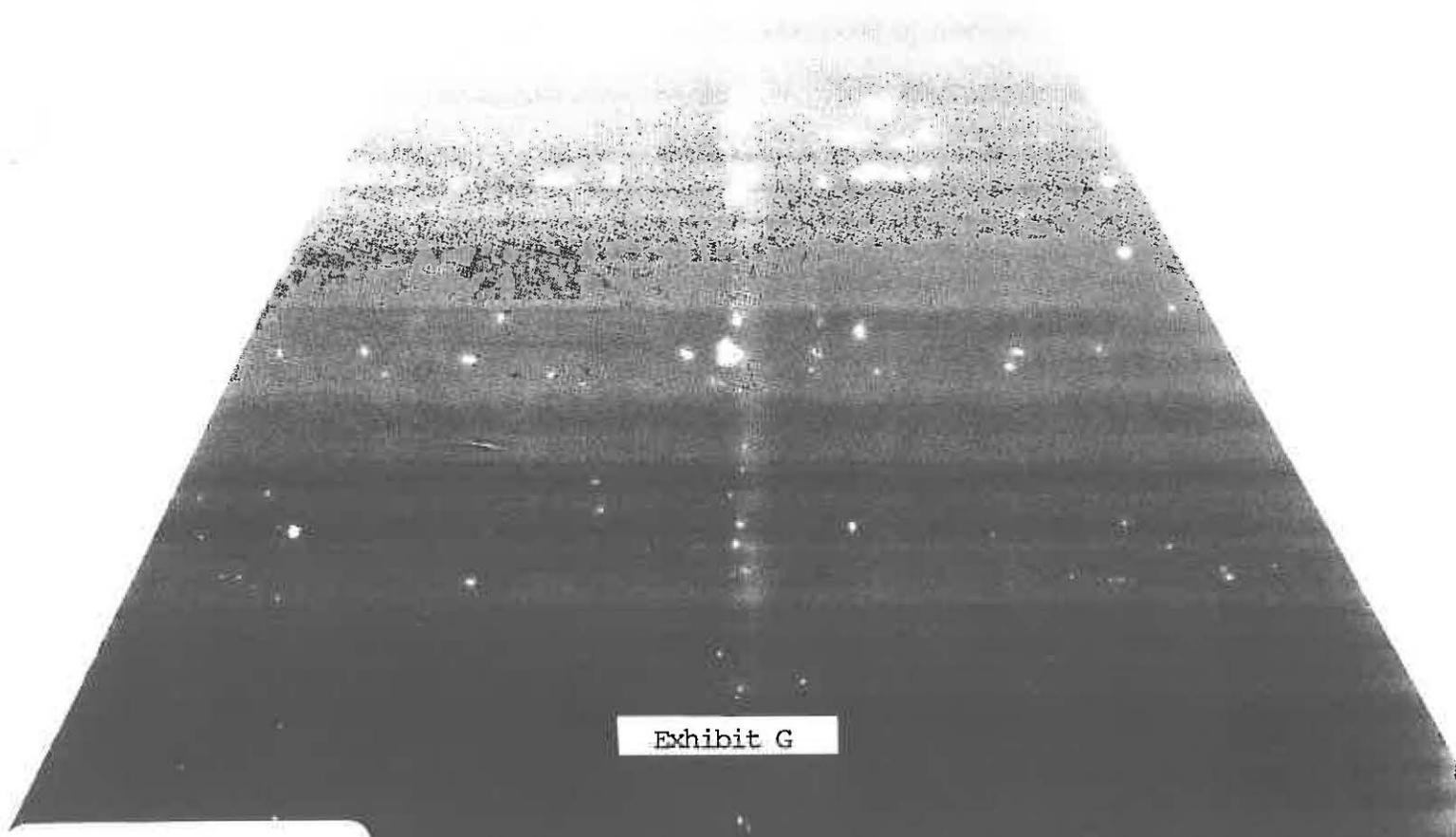
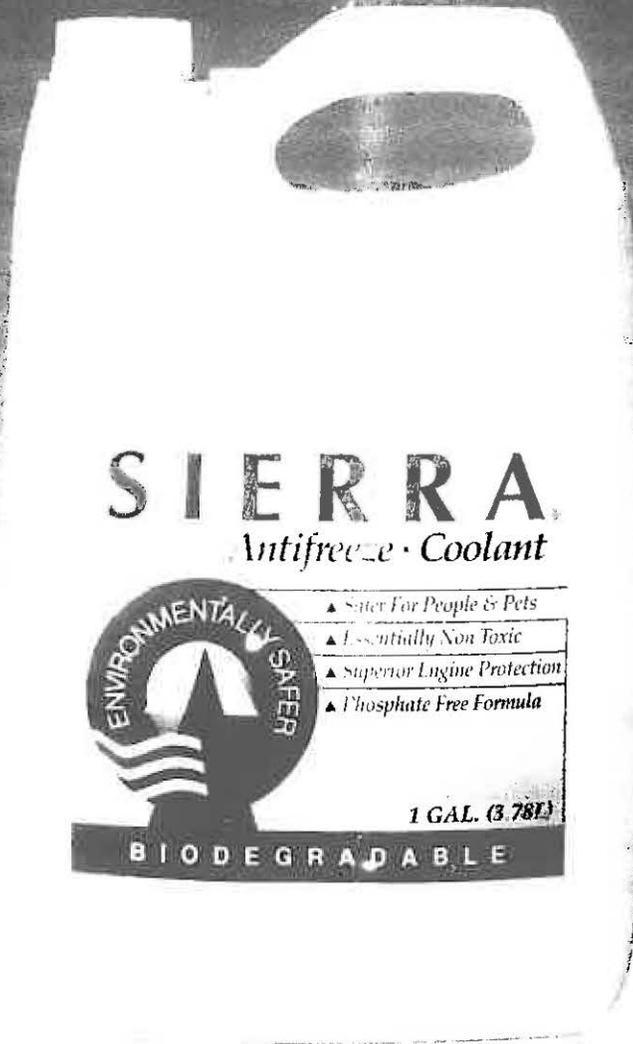


Exhibit G

So does...



**It's Not Just Antifreeze.**

**It's Safety Freeze.**

Exhibit G

# PG Antifreeze Safety and Environmental Advantages

Although EG is effective as a car and truck antifreeze, it is toxic to humans and animals if ingested. EG is metabolized to oxalic acid, which crystallizes in the kidney, causing death.

## **There Is A Safer Alternative...**

PG has received a "generally recognized as safe" designation from the Food and Drug Administration. PG has been used safely for many years as an ingredient in foods, cosmetics, and medicinal products.

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**The United States Occupational Safety and Health Administration (OSHA) has established an exposure limit of 50 parts per million (ppm) for EG. OSHA has not found it necessary to set an exposure limit for PG because of PG's inherent low toxicity.**

Concern over the handling of EG has led to the search for alternatives. Bus maintenance workers in the city of Copenhagen, Denmark, for example, have refused to

handle EG-based antifreeze due to health and safety concerns. As a result, Copenhagen has switched to the safer PG antifreeze.

## **Pet and Animal Exposure**

Dogs and cats are naturally attracted to EG because of its sweet taste and smell, but EG-based antifreeze can be lethal to pets and other animals if ingested. The Colorado State University Veterinary Hospital reported that more than 50 percent of all poisoning deaths of dogs and cats were linked to EG. By contrast, PG is harmless. In fact, it is used as a moisturizing ingredient in many pet foods.

EG also can be toxic to poultry. PG, on the other hand, is used in many animal feed formulations to keep the feed moist and palatable.

## **Biodegradability**

PG does not persist in the environment. It is readily consumed by microorganisms. In an activated sludge treatment plant operating at 65 degrees Fahrenheit, PG is fully degraded within 24 hours.



## **Recyclability**

As with all spent engine coolants, PG antifreeze should be disposed of properly or recycled after use. Although biotreatment can be used effectively to dispose of spent coolants, many firms are moving to recycling. PG antifreeze is fully recyclable, and ARCO Chemical is working through the ASTM to develop specifications for recycled antifreeze.

For more information please call our toll free number, 1 800 321 7000.