
AMPHOMER® HC

Flexible hold for high hydrocarbon systems when formulated with a variety of silicones.

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Section 1

Sales Specifications for AMPHOMER® HC



AMPHOMER® HC polymer

INCI Name: Acrylates / Octylacrylamide Copolymer

Specification

Appearance Fine, white powder

Parameter	Limits
% Volatiles	3.0 maximum
Acidity (meq/g)	2.85 - 3.15

Measurements

Volatiles are determined on a 2 gram sample heated at 130°C for 45 minutes.

Acidity is determined by colorimetric titration.

Issued: 2000.03

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Section 2

Technical Sales Bulletin for AMPHOMER® HC



AMPHOMER[®] HC Polymer INCI: Acrylates/Octylacrylamide Copolymer

Cost Efficiency with Performance

INTRODUCTION

AMPHOMER[®] HC polymer is an acrylic resin that offers high performance coupled with unique on-hair characteristics. It is exceptionally moisture resistant and thus provides high holding power under humid conditions. Films of AMPHOMER HC polymer are hard, but still provide the flexibility and adhesion to produce desirable on-hair properties.

AMPHOMER HC polymer is highly compatible with hydrocarbon propellants. It is thus ideally suited for use in formulations using high levels of propellant.

APPLICATION AREAS

Aerosol hair sprays that require high levels of hydrocarbon propellant; pump hair sprays

FEATURES / BENEFITS

- High hydrocarbon propellant tolerance
- Holds styles under humid conditions
- Gives very firm hold sprays
- High performance acrylate polymer
- Very resistant to humidity
- Forms strong films

SUGGESTED USE LEVELS, AS SUPPLIED

Hair sprays: 1.0% to 4.0%, higher concentrations may be used in non-aerosol hair spray formulations

FORMULATION GUIDELINES

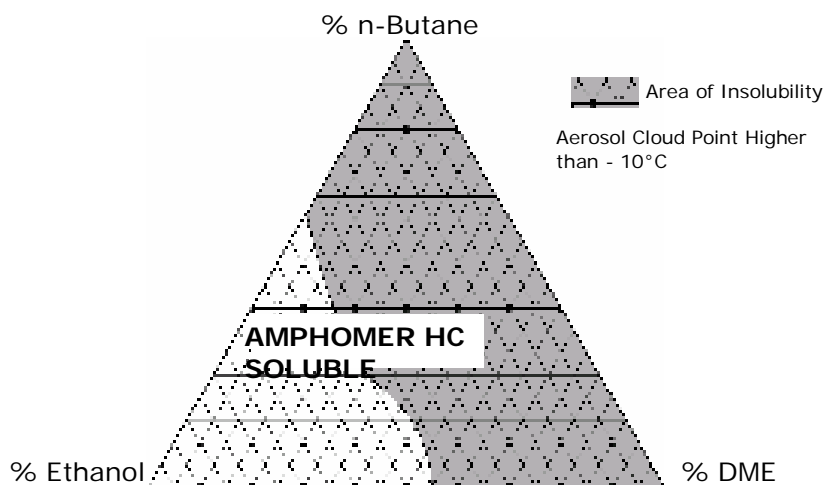
Solubility

Under most conditions, ethanol is preferred as the primary solvent of AMPHOMER HC polymer in aerosol hair sprays. Isopropanol can also be used; however this can result in some reduction of the hydrocarbon propellant tolerance.

In certain alcohol rich aerosol formulae, a small quantity of water can enhance the solubility of AMPHOMER HC polymer.



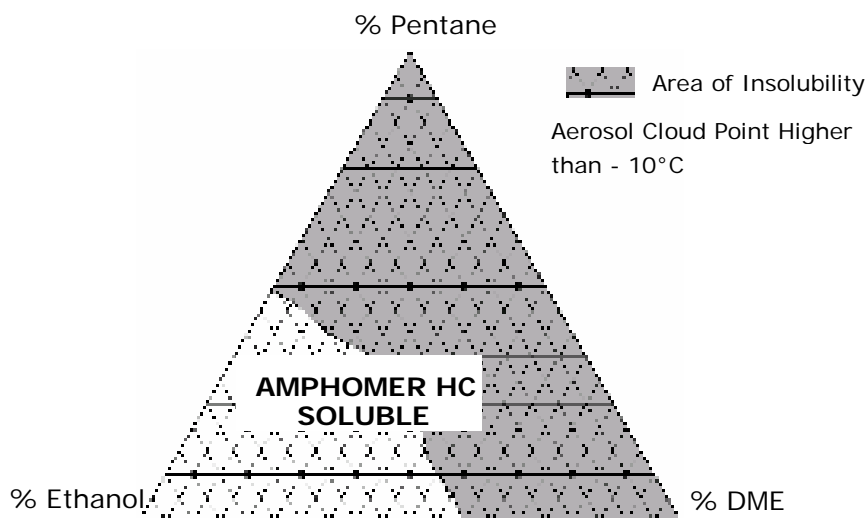
Solubility of AMPHOMER HC polymer in Ethanol-Butane-DME Systems



Formulation

28-4942	3.00
AMP	0.73
Solvent/Propellant	100.00

Solubility of AMPHOMER HC in Ethanol-Pentane-DME System



Formulation

28-4924	3.00
AMP	0.73
Solvent/Propellant	100.00



Neutralization

AMPHOMER HC polymer is carboxylated and must be neutralized with a suitable alkaline material for use in hair care formulae. Various neutralizers can be used to achieve a desired effect. The most common neutralizer used is AMP (2-amino-2-methyl-1-propanol). The suggested polymer neutralization level is 90-95%. Under these conditions, AMPHOMER HC polymer will accept approximately 50% hydrocarbon in an ethanolic system.

Alcoholic KOH can be used for neutralization when higher levels of hydrocarbon tolerance are needed. With KOH, attention should be paid to the formulation stability because of the strength of the base and the high pH of the system.

The amount of base required to neutralize the carboxyl groups in AMPHOMER HC polymer can be determined by the following relationship:

$$\text{PARTS BY WEIGHT (GRAMS) OF BASE REQUIRED} \\ = \frac{W \times A \times N \times E}{1000}$$

Where:

- W = Parts by weight (grams) of AMPHOMER HC polymer used
- A = Acidity of AMPHOMER HC polymer
- E = Equivalent weight of base
- N = % Neutralization required (decimal)

Example:

$$\begin{aligned} W &= 100\text{g} \\ A &= 3.0 \text{ meq/g} \\ N &= 0.90 \\ E &= 89.1\text{g/ mol} \end{aligned}$$

$$\begin{aligned} \text{Grams of AMP } 100 &= \\ \frac{100 \times 3.0 \times 89.1 \times 0.90}{1000} &= 24.1 \end{aligned}$$

Note:

Depending upon the polymer used, it may be necessary in quality control to consider the alkalinity of the polymer in titrations to determine percent neutralization. Contact AkzoNobel Personal Care for further information and procedures.

Preparation of Hair Spray Concentrates

The preparation of the concentrates should be carried out according to the procedure outlined in the following example:



Procedure:

1. Charge the mixing vessel with the required amount of alcohol
2. Start agitation
3. Add resin slowly – so that no accumulation of resin occurs on the surface
4. After all the resin is added, slowly add the neutralizing agent (If KOH, add as 10% solution in alcohol)*
5. Continue mixing until all the resin is in solution
6. Add the rest of the ingredients in the formulation
7. Filter the concentrate down through 5-10 micron cartridge filters before filling the containers.

*Note:

Alcohol temperature dramatically affects solution rate. It is generally suggested that alcohol temperature be 15-20 degrees Centigrade. Concentrates of up to 20% neutralized resin in alcohol may be prepared. Care should be taken that the viscosity of the concentrate is suited to the production equipment involved.

Additives

AMPHOMER HC polymer is compatible with a wide variety of additives such as ester type plasticizers, ethoxylates, silicones and a variety of protein derivatives. In formulating AMPHOMER HC polymer with high proportions of hydrocarbon propellant, it is essential that the hydrocarbon compatibility of the additives themselves be confirmed.

COMPATIBILITY

Propellants

The hydrocarbon compatibility of AMPHOMER HC polymer is excellent; the tolerance depends on the neutralizer selected as well as the resin solids and solvent system used. Levels of up to 50% hydrocarbon can be obtained with AMP neutralization, and of up to 65-70% hydrocarbon with potassium hydroxide as the neutralizer.

STORAGE AND HANDLING

AMPHOMER HC polymer can be stored under ambient conditions without undergoing decomposition or degradation. This product is supplied in fiber containers. When not in use, the container should be kept covered to prevent dirt, dust, and moisture pick-up. Store in a cool, dry area.

HEALTH AND SAFETY

Information on AMPHOMER HC polymer relating to the EU Cosmetics Directive 76/768/EEC is available on request.

11.2004, REV. 09.08.2008

The information given and the recommendations made herein are based on our research and are believed to be accurate but no guarantee of their accuracy is made. In every case we urge and recommend that purchasers before using any product in full scale production make their own tests to determine to their own satisfaction whether the product is of acceptable quality and is suitable for their particular purposes under their own operating conditions. The results of toxicity testing of the polymers used in the formulations are found in the respective technical literature, the safety of the formulation has not been established by testing. The suitability of the final formulation should be confirmed in all respects by appropriate evaluation. No representative of ours has any authority to waive or change the foregoing provisions but, subject to such provisions, our engineers are available to assist purchasers in adapting our products to their needs and to the circumstances prevailing in their business. Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute a permission, inducement or recommendation to practice any invention covered by any patent, without the authority from the owner of this patent. We also expect purchasers to use our products in accordance with the guiding principles of the Chemical Manufacturers Association's Responsible Care[®] program.

Section 3

Regulatory Information for AMPHOMER® HC



AMPHOMER® HC polymer

Regulatory Information

Parameter	
CAS Number	129702-02-9
USA (TSCA)	Yes
Europe	Polymers of EINECS listed monomers
Canada	Yes
Australia	Yes

Issued: 2007.02

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Sunday, August 02, 2009

Re: AMPHOMER[®] HC Material Origin BSE

To: Whom it may concern,

AkzoNobel Surface Chemistry Personal Care has completed a review of the ingredients used in the manufacture of our personal care products. As a result of this exercise, we are able to certify that the below product is free of any animal derived ingredients.

AMPHOMER HC polymer

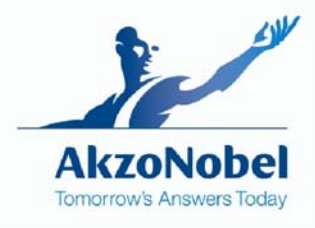
Specifically, this product is derived from synthetic sources.

Sincerely,

David Bower
Regulatory, U.S.
908 707-3756

Section 4

MSDS for AMPHOMER® HC



***** MATERIAL SAFETY DATA SHEET *****

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER	15-05082
PRODUCT NAME	AMPHOMER® HC Hair fixative
Manufacturer	Akzo Nobel Surface Chemistry LLC 525 West Van Buren Street Chicago, IL 60607-3823 USA www.surfactants.akzonobel.com
	EMERGENCY PHONES: MEDICAL: 914-693-6946 (Health & Safety Call Center-24 hours) TRANSPORT: CHEMTREC: 800-424-9300 (24 hours) CHEMTREC International: 703-527-3887 (call collect) CANUTEC: 613-996-6666 (24 hours)
	MSDS Requests/Customer Service: See phone numbers in Section 16
SYNONYMS	INCI Name: Acrylates / Octylacrylamide Copolymer

2. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL FAMILY	Octylacrylamide/Acrylate Copolymer	CAS NUMBER	CONCENTRATION
COMPONENT			(% by weight)
None classified as hazardous under the OSHA Hazard Communication Standard (29CFR 1910.1200).			

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Possible physical irritant from dust particles. Potential for dust explosion.
White Powder. Slight odor

EYE	Particulates may scratch eye surfaces and cause mechanical irritation.
SKIN CONTACT	Repeated or prolonged skin contact may result in mild irritation.
INHALATION	This product can produce a nuisance dust which should be maintained below a time weighted average of 10 mg/m3. Dust is irritant to the respiratory tract.

INGESTION Ingestion may cause irritation of the gastrointestinal tract.

4. FIRST-AID MEASURES

EYE Immediately irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 10 minutes. Obtain medical attention.
 SKIN CONTACT Wash skin with soap and water. If symptoms develop, obtain medical attention.
 INHALATION Remove to fresh air. Get medical attention if irritation persists.
 INGESTION Treat symptomatically and supportively. Get medical attention. DO NOT attempt to give anything by mouth to an unconscious person.

5. FIREFIGHTING MEASURES

AUTOIGNITION Not available
 FLASH POINT Not applicable
 EXTINGUISHING MEDIA CO₂; Dry Chemical; Foam; Water Fog
 SPECIAL FIREFIGHTING PROCEDURES Fire fighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.
 FIRE & EXPLOSION HAZARDS Product is a finely divided combustible powder and as such constitutes a potential fire hazard. Keep workplace dust levels below the stipulated exposure limits. Product contains low level of organic volatiles which may be emitted at elevated temperatures.
 HAZARDOUS COMBUSTION PRODUCTS Carbon monoxide, carbon dioxide, unknown hydrocarbons.
 LOWER EXPLOSION LIMIT (%) Not applicable
 UPPER EXPLOSION LIMIT (%) Not applicable

6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK PROCEDURES Normal precautions for "nuisance dust" should be observed. Avoid prolonged inhalation of dust. Sweep up or vacuum up and place in suitable container for disposal.

For safety and environmental precautions, please review entire Material Safety Data Sheet for necessary information.

7. HANDLING AND STORAGE

STORAGE TEMPERATURE Ambient.
 HANDLING/STORAGE Store in a cool, dry area away from heat, sparks or fire. Mechanical handling of the powder on inadequately grounded equipment can result in static electrical discharges. All handling equipment must be properly grounded. Product contains low level of organic volatiles which could accumulate in the unvented headspace of drums or bulk storage vessels. Open drums in well ventilated area. Avoid breathing vapors.
 SENSITIVITY TO STATIC ELECTRICITY Yes

SENSITIVITY TO MECHANICAL IMPACT No

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

VENTILATION REQUIREMENTS	Local.
EYE PROTECTION REQUIREMENTS	Wear safety glasses with side shields. Protect against dust and particulates.
GLOVE REQUIREMENTS	The use of chemically resistant gloves is recommended.
CLOTHING REQUIREMENTS	Uniforms, coveralls, or a lab coat should be worn.
CHANGE/REMOVAL OF CLOTHING	Remove contaminated clothing and launder before reuse.
WASH REQUIREMENTS	Wash exposed areas with soap and water.
RESPIRATOR REQUIREMENTS	None required under normal handling conditions. Use NIOSH approved dust mask if dust levels are irritating.

9. PHYSICAL AND CHEMICAL PROPERTIES

PURE SUBSTANCE OR MIXTURE	Mixture
PHYSICAL FORM	Powder.
COLOR	White
ODOR	Slight
ODOR THRESHOLD	Not available
PH AS IS	Not applicable
pH IN (1%) SOLUTION	Not applicable
OXIDIZING PROPERTIES	Not applicable
BOILING POINT	Not applicable
MELTING/FREEZING POINT	Not applicable
SOLUBILITY IN WATER	Insoluble
PARTITION COEFFICIENT (n-octanol/water)	Not applicable
BULK DENSITY	3.7 lb/gal
EVAPORATION RATE	Not applicable
VAPOR PRESSURE (mmHg)	Not applicable
VAPOR DENSITY (air = 1)	Not applicable
VOLATILES	< 3 %
VOLATILE ORGANIC COMPOUNDS	Not available
AUTOIGNITION	Not available
FLASH POINT	Not applicable

10. STABILITY AND REACTIVITY

STABILITY	Stable
STABILITY DETAIL	Stable under normal temperature and pressure. Product contains low level of organic volatiles which may be emitted or released in application processes involving the use of heat. Vent all ovens and process vessels to the outside atmosphere.

11. TOXICOLOGICAL INFORMATION

ROUTE OF ENTRY	Eye Contact; Skin Contact; Inhalation; Ingestion		
CARCINOGEN	<u>IARC</u>	<u>NTP</u>	<u>OSHA Substance</u>
COMPONENT	<u>(group)</u>		<u>Specific Regulation</u>

There is no evidence that this product poses a carcinogenic risk under normal conditions of handling and use.

CHRONIC (LONG TERM) EFFECTS OF EXPOSURE

EFFECTS OF CHRONIC EXPOSURE	Not established.
TARGET ORGANS	Not applicable.

PRODUCT TOXICOLOGY

PRODUCT INFORMATION	Unlikely to cause harmful effects under normal conditions of handling and use.
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12. ECOLOGICAL INFORMATION

POTENTIAL TO BIOACCUMULATE	Unknown.
AQUATIC TOXICITY	None Established

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHODS	Disposal should be in accordance with local, state or national legislation.
EMPTY CONTAINER	Empty containers may contain product residue; follow MSDS and label
WARNINGS	warnings even after they have been emptied.

14. TRANSPORTATION INFORMATION

This section provided for general information only.
 FOR NON-BULK SHIPMENTS.
 FOR MORE COMPLETE TRANSPORTATION REGULATORY INFORMATION PLEASE REFER TO THE SHIPPING DOCUMENTS ACCOMPANYING THE SHIPMENT OF THIS PRODUCT.

DOT CLASSIFICATION

PROPER SHIPPING NAME	NOT APPLICABLE
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The information provided herein may not include the impact of additional regulatory requirements (eg, for materials meeting the definition of a hazardous waste under RCRA, hazardous substances under CERCLA, and/of marine pollutants under CWA or other similar federal, state or local laws) or any associated exceptions or exemptions under regulations applicable to the transport of this material.

15. REGULATORY INFORMATION

USA

TSCA

This product is manufactured in compliance with all provisions of the Toxic Substances Control Act, 15 U.S.C. 2601 et. seq.

SARA/TITLE III

CAS NUMBER

CONCENTRATION
(% by weight)

Contains no substances at or above the reporting threshold under Section 313.

CALIFORNIA PROPOSITION 65

WARNING: This product contains the following chemicals that are known to the State of California to cause cancer, birth defects or other reproductive harm.

Unless a concentration is specified in Section 2 of the MSDS, the below chemical/s are present in trace amounts.

COMPONENT

CAS NUMBER

None reportable.

16. OTHER INFORMATION

HMIS® Hazard Ratings

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs by OSHA's 29 CFR 1910.1200, we choose to provide them as a service to our customers using HMIS®. These ratings are to be used only with a fully implemented HMIS® program. To deal adequately with the safe handling of this material, all the information contained in this MSDS must be considered.

NPCA recommends that employers must determine appropriate PPE for the actual conditions under which this product is used in their workplace. For information on PPE codes, consult the HMIS® Implementation Manual.

HMIS® is a registered trademark of the National Paint and Coatings Association (NPCA).

Health

Flammability

Reactivity

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1

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MSDS DATE

15-December 2008

FOR INFORMATION CONTACT:

Akzo Nobel Surface Chemistry LLC

Phone: 1-888-331-6212

ADDITIONAL INFORMATION: The information given and the recommendations made herein apply to our product(s) alone and are not combined with other product(s). Such are based on our research and on data from other reliable sources and are believed to be accurate. No guaranty of accuracy is made. It is the purchaser's responsibility before using any product to verify this data under their own operating conditions and to determine whether the product is suitable for their purposes.

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