

Eastman **OMNIA™**  
high-performance solvent

# Formulation guidelines

*Changing the chemistry of clean*

# Eastman OMNIA™

high-performance solvent

## Contents

### Overview of Omnia

- What is Omnia?
- Performance
- Safety
- Value
- Advantages of neutral-pH cleaners
- Omnia in neutral-pH cleaners
- Regulatory and certifications
- Performance testing

### Chemical properties

- Chemical properties
- pH stability
- Water solubility
- Solvent strength
- Ability to grab and hold soils
- Wetting characteristics
- Mild odor

### Formulating with Omnia

- Why Omnia works differently
- Surfactant selection
- Surfactant stability testing
- Surfactant stability results
- Chelators
- Guidelines for use in cleaning formulations

### Starting point formulations with mixing instructions

- All-purpose
- Bathroom
- Floor
- Glass
- Heavy-duty hard surface
- Heavy-duty degreaser

### Material compatibility

- Impact on variety of surfaces
- Building material testing
- Gasket and O-ring testing
- Plastic testing

Eastman **OMNIA™**  
high-performance solvent

## Overview of Omnia

### What is Eastman Omnia™ high-performance solvent?

Omnia is a safe, readily biodegradable, and cost-effective solvent that provides unmatched performance, safety, and value to cleaning product formulators and end users. Unlike other LVP-VOC\* exempt solvents, Omnia enables improved cleaning efficacy and value-in-use.

Effective in a variety of light- and heavy-duty cleaners formulated at neutral pH, Omnia works on a wide range of soils—from greasy dirt and tar to soap scum.

The unique chemistry of Omnia dissolves both polar and nonpolar soils, providing versatility to formulators for use in multiple formulation types, and is designed to enable formulations to qualify for 3rd-party certifications.

### Performance: The high-performance solvent for cleaners

Eastman Omnia™ high-performance solvent provides differentiated cleaning efficacy in a variety of neutral-pH industrial and institutional cleaners—including all-purpose, glass, bathroom, and floor formulations. Its unique chemistry helps remove the toughest soils, from greasy dirt and tar to soap scum.

### Safety: Cleaning with care—a safe ingredient for tough dirt

Omnia has an excellent safety profile that enables formulators and end users to comply with increasingly stringent regulatory and market demands. Omnia is also readily biodegradable, helping ensure the safety of people and the environment.

### Value: Value through versatility

Omnia delivers value to formulators and maintenance personnel through its exceptional cleaning power. Its powerful cleaning chemistry removes a wide range of soils without harming surfaces. The ability to lower use levels of Omnia in formulations compared to industry alternatives and to eliminate the need for cosolvents provides the opportunity to reduce the total formulated cost.

*\*NOTE: Omnia is a VOC for products used in industrial applications which are not regulated under EPA's or CARB's Consumer Products rules.*

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## Advantages of neutral-pH cleaners

Cleaning products formulated at neutral pH (4–8) are considered safer for surfaces, people, and the environment compared to those that are extremely acidic or extremely alkaline. The human safety advantages of neutral-pH cleaners include a lower potential for oral, dermal, and inhalation toxicity as well as a lower potential for aquatic harm when released into the environment. Formulators are challenged to provide effective neutral-pH formulations to address worker safety while trying to maintain maximum performance. Omnia is highly effective and recommended for use in neutral-pH cleaning formulations. As a result, Omnia gives formulators the option to achieve both performance and safety as they strive to deliver safer and more effective cleaning products.

## Advantages of using Omnia in neutral-pH cleaning formulations

Over the last decade, the trend has been to formulate solvents out of cleaning products due to increasingly stringent regulations. Because solvents are often the active ingredient responsible for dissolving soils, this trend has resulted in cleaning products that can be ineffective in removing soils from substrates.

Omnia's excellent safety profile enables formulators and end users to comply with increasingly stringent regulatory and market demands. Omnia is also readily biodegradable and nonflammable, helping ensure the safety of people and the environment.

## Regulatory and certifications

- Listed by GreenBlue® on their CleanGredients® database
- Listed with the highest rating (full green circle) on the Safer Chemical Ingredients List
- Approved by Safer Choice for use in products that may be directly released to the environment, bypassing sewage treatment
- Meets California Environmental Protection Agency Air Resources Board (CARB) and United States Environmental Protection Agency (U.S. EPA) criteria for classification as an LVP-VOC in regulated consumer products
- Preregistered for Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) in the EU
- Listed as an EPA FIFRA inert ingredient

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## Omnia is NOT listed on:

- California Proposition 65 list
- Clean Air Act Hazardous Air Pollutants list
- U.S. EPA Toxic Release Inventory
- CA Air Resources Board (CARB) Toxic Air Contaminants list
- Canadian Toxic Substances list
- EPA Class I & II and Montreal Protocol Ozone Depleting Substances list

## Human and environmental safety

Omnia has a benign toxicity profile for human and environmental health, as evidenced by:

- No lethality seen in acute oral, dermal, and inhalation studies up to maximum limit doses based on practical exposure
- No evidence of reproductive toxicity
- Nonmutagenic; no evidence of genotoxicity
- No evidence of harm to aquatic life up to maximum limit doses based on practical exposure

Full toxicity profile available at [www.eastman.com/omnia](http://www.eastman.com/omnia).

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## Low vapor pressure-volatile organic compound

CARB has regulatory authority for consumer products and sets VOC limits for these products, which include adhesives; household, institutional, brake, and electronic cleaners; degreasers; some personal care products; multipurpose lubricants; paint thinners and multipurpose solvents; etc. The Consumer Product Rule allows an LVP (low vapor pressure) exclusion based on low volatility for most product categories. CARB defines LVP substances as VOCs that have a vapor pressure less than 0.1 mmHg at 20°C or a boiling point greater than or equal to 216°C.

If a substance qualifies for LVP exclusion, it is not counted as a VOC and VOC limits do not apply to its use for most product categories regulated under CARB's Consumer Product Rule. This has become extremely important as VOC limits have been reduced so much that it is difficult to formulate products with solvents. For example, the VOC limit for general-purpose cleaners is 0.5%. Under these limits, formulators are looking for LVP-VOC solvents so that they can add a solvent at levels necessary to get desired performance.

CARB VOC limits	
Cleaner category	VOC limit
Bathroom cleaner	1%
General-purpose cleaner	0.5%
Glass cleaner	3%

LVP-VOC status for Omnia opens many opportunities for use in the cleaners market. Many companies will not even consider the use of a solvent in their cleaner formulations unless it has LVP-VOC status.

Coatings and industrial applications are not regulated under the Consumer Product Rule, and the LVP-VOC exclusion does not apply to these products.

*NOTE: Omnia is an LVP-VOC, which means it is not included in the calculation of VOC of the cleaner in the U.S. Neutral pH provides a safer alternative to some cleaners on the market. This product has a mild odor and light yellow color. Performance evaluation was conducted at a 1:10 dilution. Addition of a preservative, colorant, and/or fragrance should be done at the discretion of the formulator.*

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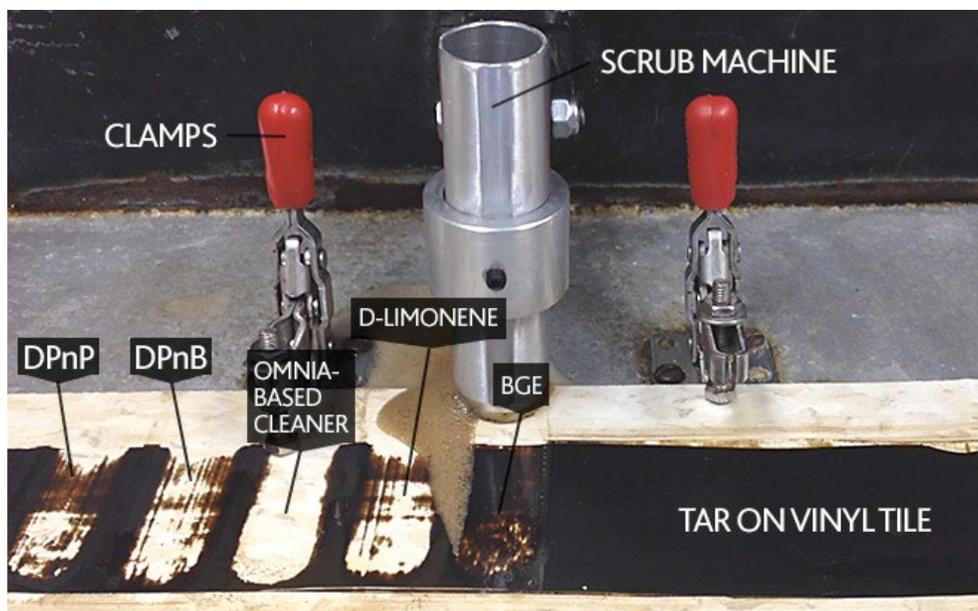
### Eastman cleaning test method

Cleaning efficacy was measured using a custom-built reciprocating scrub machine. Soiled panels were scrubbed with a sponge wetted with neutral-pH cleaning formulations containing 2% solvent level. To isolate and measure chemical cleaning, the scrub machine was modified to minimize both mechanical and thermal energies.

To effectively quantify cleaning performance, completed scrub test panels were scanned into a computer using a standard flatbed scanner. The scanned images were then analyzed to evaluate the cleaning performance of each formulation using grayscale measurements of remaining soil.

Using the same number of scrubs, the Omnia-based formulation achieved 100% cleaning efficacy while all other solvent-based formulations remained visibly soiled.

Visit [Eastman.com/OmniaPerformanceForm](http://Eastman.com/OmniaPerformanceForm) to receive complete scrub testing and performance results.

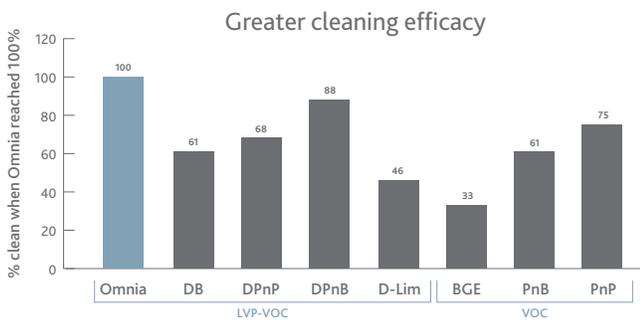
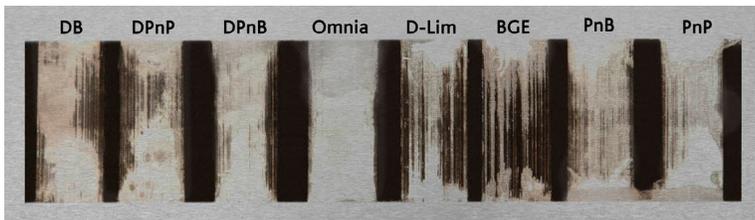


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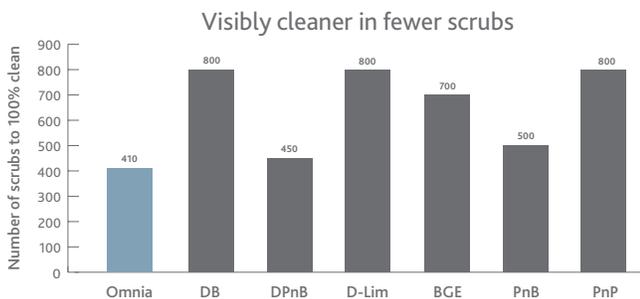
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## Omnia concentrate—cleaning greasy soil from aluminum

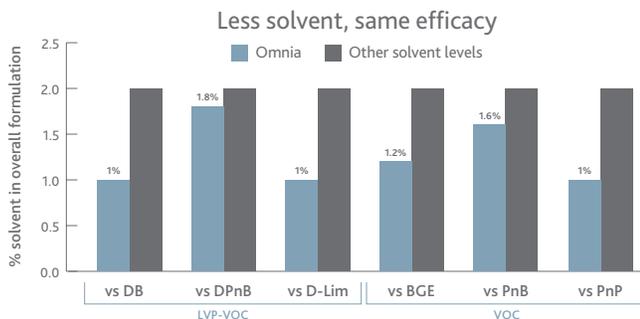
For testing results of additional soils and substrates, visit [Eastman.com/OmniaPerformanceTesting](http://Eastman.com/OmniaPerformanceTesting).



Soiled panels were scrubbed with a sponge wetted with neutral-pH cleaning formulations containing 2% levels of various solvents. Once the first formulation completely removed the soil from the panel, the scrub machine was stopped and results were photographed and analyzed. Using the same number of scrubs, the Omnia-based formulations achieved 100% cleaning efficacy where all other solvent-based formulations remained visibly soiled. (Cutline corresponds with slide photo & this image.)



Internal testing shows that when cleaning greasy soil from aluminum, neutral-pH formulations containing Omnia reached 100% clean while those cleaned with formulations containing other commonly used solvents remained visibly soiled.



Internal testing shows that when cleaning greasy soil from aluminum, neutral-pH formulations with lower percentages of Omnia have the same cleaning efficacy as those with 2% levels of other commonly used solvents.

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## Chemical properties

Property	Typical value
Appearance	Clear liquid
Autoignition temperature	303°C (577.4°F)
Boiling point @ 760 mmHg	217.7°C (424.8°F)
Evaporation rate ( <i>n</i> -butyl acetate = 1)	0.01
Flash point, setaflash closed cup	95°C (203.9°F)
Freezing point	-70°C (<-94°F)
Hansen solubility parameters total (cal/cm <sup>3</sup> ) <sup>1/2a</sup>	10.21
Dispersion	7.87
Polar	3.13
Hydrogen bonding	5.62
Initiation temperature, with energy of 2.25 J/g	175.5°C (347.9°F)
Molecular weight	160.21
Odor	Mild
Refractive index @ 20°C	1.4271
Solubility g/100 @ 25°C	
In water, wt%	3.9
Water in, wt%	10.3
Surface tension @ 25°C, dynes/cm	29.3
Vapor pressure <sup>b</sup> @ 20°C, mmHg	0.04
Viscosity @ 25°C	5.77 cP
Wt/vol @ 20°C	0.971 kg/L (8.1 lb/gal)

<sup>a</sup>Values estimated by Dr. Charles Hansen shown as (cal/cm<sup>3</sup>)<sup>1/2</sup>. <sup>b</sup>ASTM D1160 modified for this application.

This information is provided without warranty and is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.

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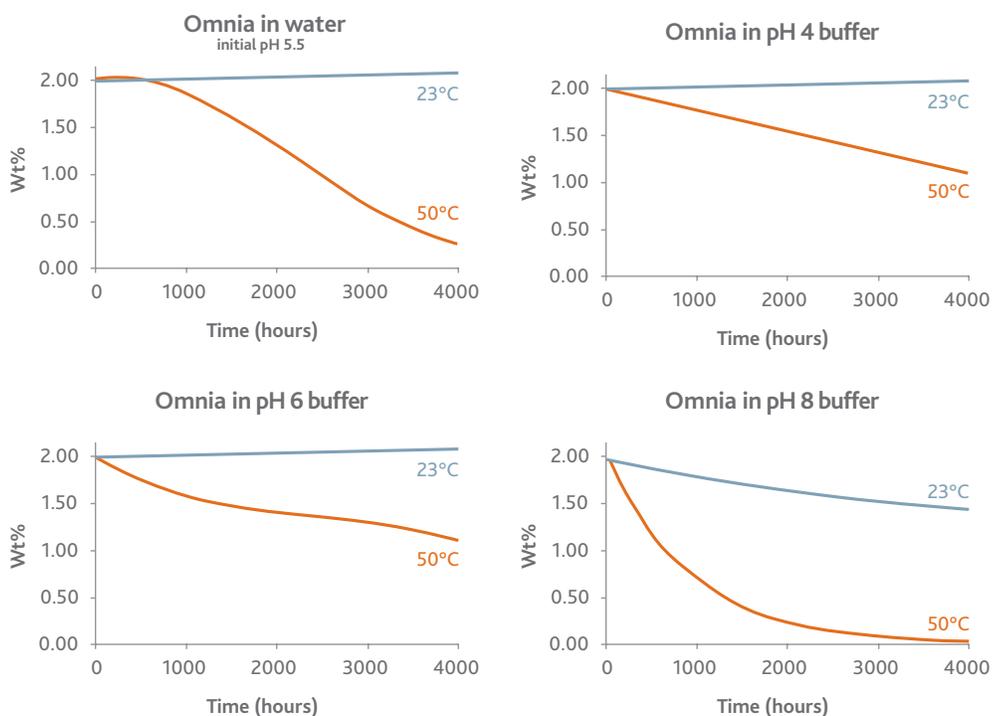
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## pH stability

Eastman Omnia™ high-performance solvent allows formulators to create noncorrosive and neutral-pH cleaners. The use of strong acids (low pH) and bases (high pH) compromises the stability of Omnia in aqueous environments. Because cleaners can be formulated with Omnia at neutral pH, there is less need for protective gloves to minimize contact of the cleaner with skin.

During internal testing, Omnia was added at 2% by weight in deionized water and at various pH levels in simple buffer solutions. These solutions were used to maintain a constant pH. The concentration of Omnia remaining in the solution was measured at time increments up to ~4000 hours using a gas chromatographic method.

Since Omnia is an ester alcohol, the molecule will hydrolyze in highly acidic or basic conditions. Hydrolysis also accelerates when solutions are held at elevated temperature for extended periods. Solution pH and overall chemistry may be affected by other components in a given formulation.



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## Water solubility

Unlike many of the alcohols and glycol ethers used in cleaning, Eastman Omnia™ high-performance solvent is not completely miscible in water. Omnia is only soluble in water up to 3.9%. In a ready-to-use aqueous formulation, when levels of solvent can be 3% or less, Omnia should dissolve completely in water and make aqueous formulating much easier. However, while preparing aqueous formulations as concentrates when the amount of solvent is above 3%, surfactants will be required to allow stable emulsion of Omnia in the water. Many formulations using other non-water-soluble solvents, such as *d*-limonene and methyl soyate, should be stable when replacing these solvents with Omnia.

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## Solvent strength

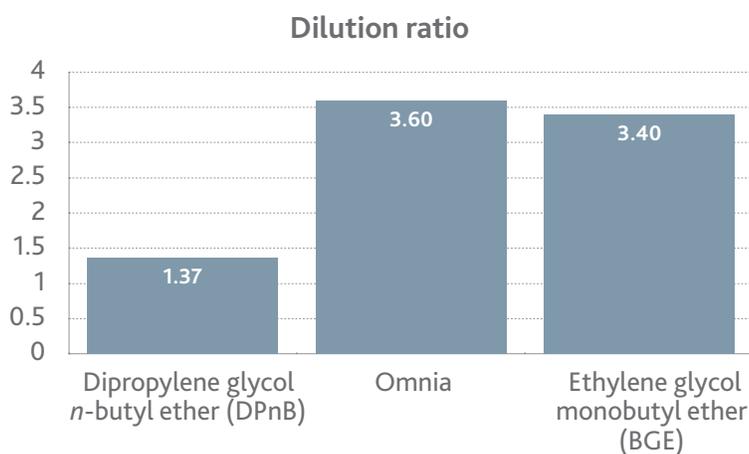
The solvent used in a cleaner must be able to dissolve a number of different soils. Because of its unique chemical structure (very polar ester alcohol and nonpolar aliphatic chain), Omnia has the ability to move from the aqueous phase and penetrate and solvate a number of different oily soils. One of the measures of this high solvent power is demonstrated in the high Hansen solubility parameters of Omnia. Omnia has a total Hansen solubility parameter of 10.1, higher than DPnB, PnP, and PnB and equivalent to the E-series glycol ethers, BGE and DB, that have been used for years in high-performance cleaning applications.

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### Ability to grab and hold soils

Eastman Omnia™ high-performance solvent is effective on a wide range of soils. Internal testing of the dilution ratio of Omnia using an ASTM test method showed that Omnia keeps a higher loading of organic polymer and oily hydrocarbon suspended in water better than BGE solvent. Omnia performed substantially better than commonly used propylene glycol ether solvents PnP and DPnB as well as dibasic esters.



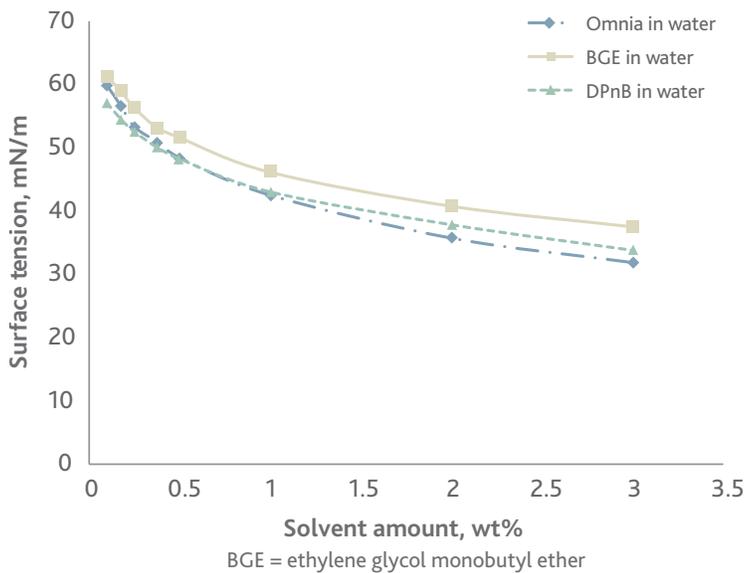
Additionally, Omnia has the ability to couple water to organic soils. Internal testing ran the coupling efficiency of Omnia to determine how much Omnia is needed to make a homogeneous solution of water and organic solvent. While the coupling efficiency did not match that of BGE, Omnia's coupling efficiency was very similar to *n*-butanol. The compatibility with both polar and nonpolar soils makes Omnia unique when compared to other solvents commonly used in cleaners.

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## Wetting characteristics

Internal testing shows that low amounts of Eastman Omnia™ high-performance solvent decrease the surface tension of water. Compared with water-soluble glycol ethers such as BGE, Omnia is more efficient in lowering the surface tension of water.



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## Mild odor

Eastman Omnia™ high-performance solvent has a mild odor and, therefore, presents no appreciable impact on the overall odor of cleaning product formulations or on commonly used cleaning product fragrances. As the odor profiles of ingredients and formulations vary, formulators must make their own determination of suitability for use when trying to achieve specific odor and fragrance targets.

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## Formulating with Omnia

### How Eastman Omnia™ high-performance solvent works differently than other solvents

Formulators are challenged to provide effective neutral-pH formulations to maintain workplace safety while trying to obtain maximum performance. Omnia is highly effective and recommended for use in neutral-pH cleaning formulations. As a result, Omnia gives formulators the option to achieve both performance and safety as they strive to deliver safer and more effective cleaning products.

Degreasers formulated with Omnia utilize a different mechanism than traditional high-pH alkaline cleaners. Alkaline cleaners remove the grease by saponification—a chemical reaction between the caustic and the fats and oils. This chemical reaction breaks down these soils to make removal easier. Though effective, high-pH cleaners may damage some surfaces, such as soft metal and natural stone. Additionally, users of high-pH cleaners must follow appropriate safety precautions to prevent irritation of the skin, eyes, or lungs.

Omnia-based cleaners formulated at neutral pH work by effectively penetrating and dissolving soil and grease without saponification. Because of its high dilution ratio, Omnia interacts with the oil, dissolves it, and effectively holds it in the water. This means that these water-held soils can be easily rinsed away without the negative issues associated with extreme pH systems.

Cleaning products formulated within a neutral-pH range (4–8) are considered safer for surfaces, people, and the environment compared to those that are extremely acidic or alkaline. Eastman Omnia™ high-performance solvent is changing the chemistry of clean by enabling formulators to maintain performance and safety goals.

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## Surfactant selection formulation

Formulations including Omnia and various surfactant blends were tested internally for stability and performance to determine the best surfactants for inclusion in starting point formulations. Each concentrated formulation tested contained the same amount of Omnia (17.5%). Different types of anionic and nonionic surfactants were included, with a ratio close to 1:1 in each. The nonionic surfactant blends were kept at about the same hydrophilic-lipophilic balance (HLB) value (10–14). A small amount of sodium bicarbonate was added as a buffer and neutral-pH builder.

Formulation details:

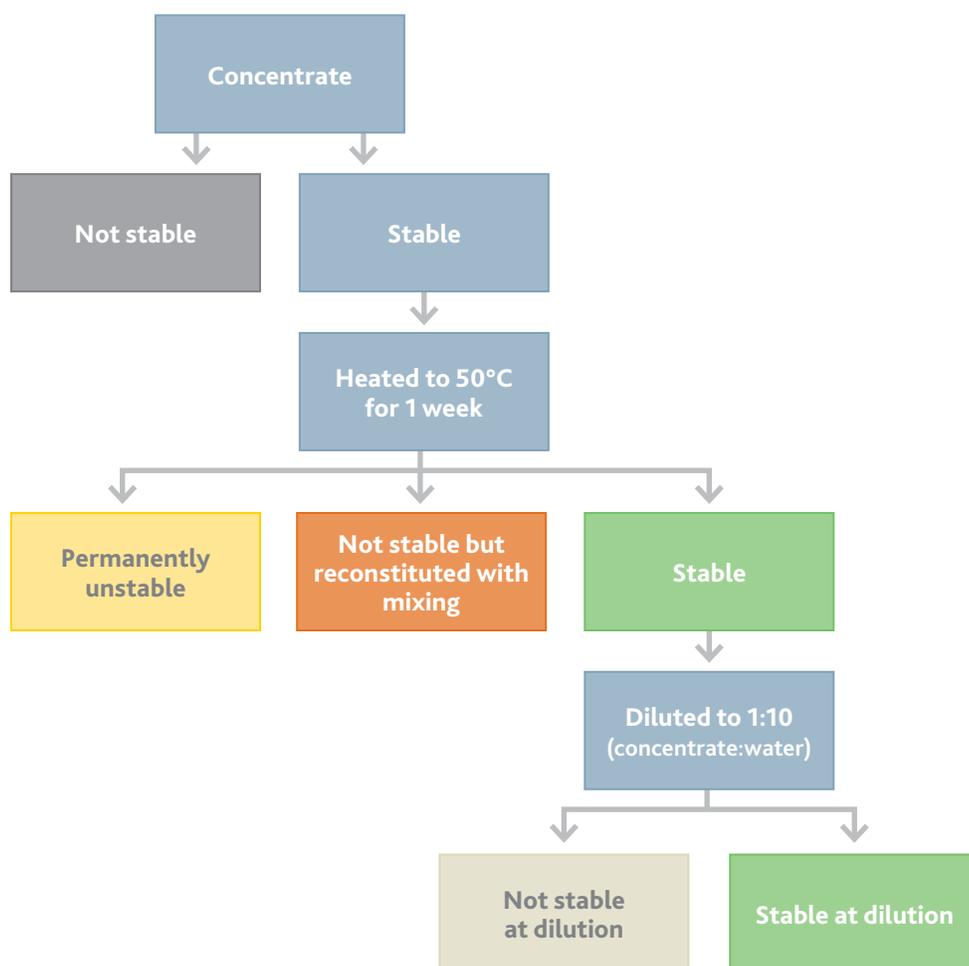
Standard 10-fold concentration formulation	
Component	Wt%, based on % active ingredient
Omnia	17.5
Sodium bicarbonate	1
Nonionic surfactant	9.6–10
Anionic surfactant	8.4–10
Water	61.5–63.5

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## Surfactant stability testing protocol

Formulation stability was tested through a multistep process. Concentrates that were stable (i.e., visually clear and not separating into two layers) on formulation were heated to 50°C for 1 week. Concentrates were then given a rating of green (stable), orange (unstable but reconstituted with mixing), yellow (permanently unstable after heating), or gray (unstable upon mixing). Green concentrates were then diluted at a 1:10 ratio to ensure stability at the ready-to-use level.



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## Formulation cleaning performance results

Cleaning efficacy was measured using a custom-built reciprocating scrub machine. To measure chemical cleaning, the scrub machine was modified to minimize both mechanical and thermal energies. Each formulation was tested cleaning tar from aluminum panels. If the panel was not clean at 1,000 scrubs, testing was stopped. A hard surface performance evaluation was conducted using this protocol. Please visit [www.eastman.com/omniaperformance](http://www.eastman.com/omniaperformance) to receive complete testing and performance results.

### Standard 10-fold diluted formulation for cleaning performance testing

Component	Wt%
Omnia	2
Nonionic surfactant	1
Anionic or amphoteric surfactant or hydrotrope	1
Builder	0.1
Water	95.9

	Secondary alcohol ethoxylate (Tergitol 15-S-9) <sup>A</sup>	Octylphenol ethoxylate (Triton X-100) <sup>A</sup>	Linear alcohol (C9-C11) ethoxylate, POE-8 (Bio-Soft N91-8) <sup>A</sup>	Amine oxide (Tomamine AO 455) <sup>A</sup>	Modified polyether (Triton CF-10) <sup>A</sup>	Alcohol ethoxylate (NatSurf 205) <sup>A</sup>	Alkyl polysaccharide (Glucopon 425N) <sup>A</sup>	Proprietary blend (Videt ES-1) <sup>A</sup>	Alkylpolysaccharide (Multitrope 1620) <sup>C</sup>	Detrope SA45 (sodium alkanolate) <sup>B</sup>
Sodium lauryl ether sulfate, 2 mol EO (Texapon NSO-IS) <sup>B</sup>	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Sodium caprylyl sulfonate (Bio-Terge PAS-85) <sup>B</sup>	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Ammonium lauryl ether sulfate, 3mol EO (Steol CA-460) <sup>B</sup>	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Sodium dodecylbenzene sulfonate (Bio-Soft D40) <sup>B</sup>	Yellow	Green	Yellow	Yellow	Grey	Orange	Yellow	Green	Green	Green
Alkyl polyglucoside (Surfapon AG-42) <sup>B</sup>	Green	Yellow	Yellow	Grey	Grey	Orange	Grey	Yellow	Orange	Green
Ammonium lauryl sulfonate (ALS) <sup>B</sup>	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Sodium lauroyl sarcosinate (Crodasinic LS-30) <sup>B</sup>	Green	Green	Green	Green	Green	Green	Grey	Green	Green	Green
Alkyldiphenyloxide disulfonate (Dowfax 2A1) <sup>B</sup>	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Ammonium nonylphenoxy polyethoxy sulfate (Rhodapex CO436) <sup>B</sup>	Green	Yellow	Green	Orange	Green	Green	Green	Green	Green	Green
Sodium methyl 2-sulfolaurate (Alpha Step MC-48) <sup>B</sup>	Green	Green	Green	Orange	Grey	Orange	Green	Green	Green	Green
Decanoic acid potassium salt/octanoic acid potassium salt (Multitrope 810) <sup>C</sup>	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Sodium xylene sulfonate (SXS) <sup>C</sup>	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Sodium lauriminodipropionate (DeTeric LP) <sup>D</sup>	Green	Green	Green	Green	Orange	Green	Green	Green	Green	Green

### Legend

Green	Stable at concentration and dilution; performance tested
Orange	Not stable but reconstituted with mixing; not performance tested
Yellow	Permanently unstable; not performance tested
Grey	Not stable at concentrate; not performance tested
A	Nonionic
B	Anionic
C	Hydrotrope
D	Amphoteric

**Items in bold** are listed as full green circle on EPA Safer Choice Safer Chemical Ingredients List and meets Safer Choice Criteria for Chemical Ingredients.

Product brands referenced herein are the property of their respective owners, as follows: Texapon: Cognis IP Mgmt GmbH; Alpha Step, Bio-Soft, Bio-Terge, Steol: Stepan Chemical Co.; Rhodapex: Rhodia Chimie Corp.; DeTeric, DeTrope: Deforest Enterprises; Dowfax, Tergitol, Triton: Dow Chemical Co.; Crodasinic, Multitrope, NatSurf: Croda Intl.LLC; Surfapon: Surfactants Inc.; Videt: Vitech Intl. LLC; Tomamine: Air Products and Chemicals, Inc.

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## Chelator effectiveness with Omnia

Chelators are often used in aqueous cleaners to mitigate hard water. Chelators interact with ions in water to ensure cleaning systems will perform effectively. As such, chelation of salts in hard water is necessary to keep cleaning efficiency high.

During internal testing, 0.5 wt% of a chelator along with 0.5 wt% of Omnia were placed into water with a hardness value of ~150 ppm Ca. An iron metal strip was exposed to this mixture for one week to assess rust inhibition.

## Internal testing

Seven commonly used chelators were tested over 1 week at the following percentages:

- 0.5 wt% chelator
- 0.5 wt% Omnia
- 99 wt% hard water (made using calcium carbonate to achieve the specified hardness value)

## Results

**Chelators marked magenta** provided chelating efficiency with only 0.5 wt% and remained clear during testing. These chelators did not lose efficiency at any time during test duration.

**Chelators marked blue** provided less chelating efficiency with only 0.5 wt% and remained clear during testing. These chelators began to lose efficiency by the end of test duration. These chelators will work but require more chelator to be as effective as those marked magenta.

**Chelators marked gray** provided the least chelating efficiency with only 0.5 wt% and remained clear during testing. These chelators lost efficiency by the end of test duration. These chelators will work but require more chelator to be as effective as those marked magenta.

	<b>Sodium gluconate</b>
	<b>Sodium citrate</b>
	<b>Sodium glucoheptanoate</b>
	<b>Lactic acid</b>
	Gluconic acid
	EDTA
	<b>BASF Trilon M</b>

Chelators shown in bold are listed as full green circle on EPA Safer Choice Safer Chemical Ingredients List and meet Safer Choice Criteria for Chemical Ingredients.

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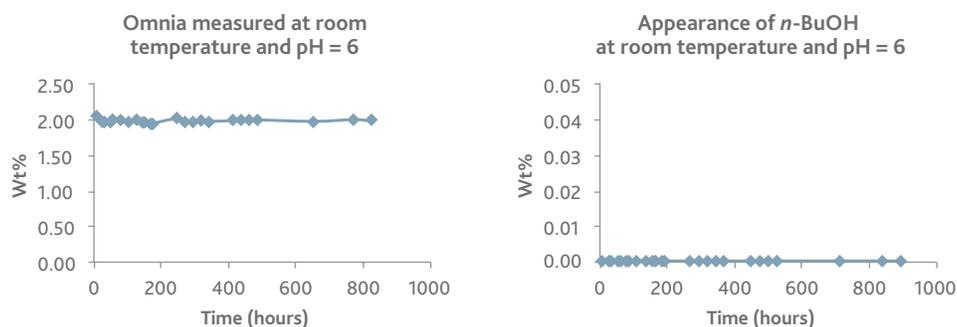
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### Guidelines for use in cleaning formulations

Eastman Omnia™ high-performance solvent enables development of CARB-compliant, neutral-pH cleaning products that are highly effective against difficult soils—from greasy soil and tar to soap scum. Additionally, it is safe, readily biodegradable, and cost effective, which provides differentiated performance benefits to formulators, end users, and the environment.

### Formulating guidelines

- Omnia is an ester alcohol, providing powerful cleaning efficacy in a neutral-pH range of 4 to 8. In a typical cleaning formula in the recommended pH range, Omnia is hydrolytically stable.



- At more extreme pH ranges, hydrolysis rates will increase and efficacy will be compromised.
- The upper water solubility limit of Omnia is 3.9%. This is the highest level at which stable solutions can be made without need for cosolvents or surfactants. A typical use level in a ready-to-use, aqueous-based cleaner is 1%–2%.
- Our tests have shown significantly increased efficacy when replacing other solvents. Due to the variability of formulations and ingredient interactions, good formulation techniques including component optimization should be followed to achieve maximum benefit.
- While Omnia was developed for aqueous cleaners, it can also be used in VOC-compliant, nonaqueous cleaners or degreasers.
- Omnia was designed to be safe on waxed floors and is not highly effective on waxes (floor wax, crayons, some hydrocarbon greases). As a result, we do not recommend its use in floor strippers.

# Eastman OMNIA™

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## Formulating guidelines (continued from previous page)

- Formulations have been developed with a variety of commonly used ingredients with no compatibility issues encountered.

Typical physical properties	
Relative evaporation rate ( <i>n</i> -butyl acetate = 1)	0.01
Density @ 20°C, g/L	0.971
Solubility, g/100 g @ 25°C	
In water, wt%	3.9
Water in, wt%	10.3
Vapor pressure @ 20°C, mmHg <sup>a</sup>	0.04
Normal boiling point @ 760 mmHg, 1.01 bar, °C (°F)	217.7 (424.8)
Flash point, °C (°F)	96 (208.4)
Initiation temperature, °C (°F), with energy of 2.25 J/g	175.5 (347.9)
Hansen solubility parameters total, (cal/cm <sup>3</sup> ) <sup>½</sup>	10.35
Dispersion	8.05
Polar	3.20
Hydrogen bonding	5.75
Surface tension, dynes/cm	25.7
Corn oil coupling efficiency <sup>b</sup>	10.2
Odor	Low
Appearance	Clear liquid

<sup>a</sup>ASTM D1160 modified for this application    <sup>b</sup>The corn oil and water coupling test is a quick and easy way of evaluating how effectively a solvent can make the multiphase system a homogeneous solution. A more efficient coupling solvent would be able to perform that task with less solvent compared to a less efficient coupling solvent.

## Eastman OMNIA™

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# Starting point formulations with mixing instructions

## All-purpose concentrate

This starting point formulation was tested for efficacy in removing tar from aluminum, soap scum from porcelain tile, and greasy soil from aluminum.

Ingredient	Wt%
Omnia <sup>a</sup>	20.0
Videt ES-1 (77%) <sup>b</sup>	12.9
Ammonium lauryl sulfate (30%) <sup>c</sup>	33.0
Sodium bicarbonate <sup>d</sup>	1.0
Preservative/colorant/fragrance	q.s.
Water	32.8

<sup>a</sup>Omnia, CAS 53605-94-0, Eastman Chemical Company\*    <sup>b</sup>Proprietary, CAS Proprietary, Vitech International    <sup>c</sup>Ammonium lauryl sulfate, CAS 2235-34-3, Sigma-Aldrich\*    <sup>d</sup>Sodium bicarbonate, CAS 144-55-8, Mallinckrodt\*

\*Listed as full green circle on EPA Safer Choice Safer Chemical Ingredients List and meets Safer Choice Criteria for Chemical Ingredients.

Product pH: 7–8

Product clarity: Clear

Thermally stable (1 week @ 50°C): Yes

Total actives	Wt%
Omnia	20.0
Videt ES-1	10.0
Ammonium lauryl sulfate	10.0
Sodium bicarbonate	1.0

## Procedure

- Mix ingredients in the order listed.
- Use low-speed rolling or low-shear mixing at room temperature.

## Recommended dilution

- Heavy duty—1:1
- Standard duty—1:10
- Light duty—1:20

*NOTE: Omnia is an LVP-VOC, which means it is not included in the calculation of VOC of the cleaner in the U.S. Neutral pH provides a safer alternative to some cleaners on the market. This product has a mild odor and light yellow color. Performance evaluation was conducted at a 1:10 dilution. Addition of a preservative, colorant, and/or fragrance should be done at the discretion of the formulator.*

# Eastman OMNIA™

high-performance solvent

## Bathroom RTU

This starting point formulation was tested for efficacy in removing tar from aluminum, soap scum from tile, and greasy soil from aluminum.

Ingredient	Wt%
Omnia <sup>a</sup>	2.0
NatSurf™ 205 (70%) <sup>b</sup>	1.4
DeTeric LP (45%) <sup>c</sup>	2.2
Sodium bicarbonate <sup>d</sup>	0.1
Preservative/colorant/fragrance	q.s.
Water	94.3

<sup>a</sup>Omnia, CAS 53605-94-0, Eastman Chemical Company\*    <sup>b</sup>Ethoxylated alcohol, CAS 71060-57-6, Croda\*    <sup>c</sup>Sodium laurimodipropionate, CAS 14960-06-6, DeForest\*    <sup>d</sup>Sodium bicarbonate, CAS 144-55-8, Mallinckrodt\*

\*Listed as full green circle on EPA Safer Choice Safer Chemical Ingredients List and meets Safer Choice Criteria for Chemical Ingredients.

Product pH: 7–8

Product clarity: Clear

Thermally stable (1 week @ 50°C): Yes

Total actives	Wt%
Omnia	2.0
NatSurf 205	1.0
DeTeric LP	1.0
Sodium bicarbonate	0.1

## Procedure

- Mix ingredients in the order listed.
- Use low-speed rolling or low-shear mixing at room temperature.

*NOTE: Omnia is an LVP-VOC, which means it is not included in the calculation of VOC of the cleaner in the U.S. DeTeric is an amphoteric surfactant which is touted for its metal cleaning ability. The formulation outperformed a commercial competitor when tested to remove soap scum from tile. Performance evaluation was conducted at the listed use level. The formulation has moderate to high foaming with a mild odor. Addition of a preservative, colorant, and/or fragrance should be done at the discretion of the formulator.*

# Eastman OMNIA™

high-performance solvent

## Floor cleaning RTU

This starting point formulation was tested for efficacy in removing soil from waxed vinyl floor tile.

Ingredient	Wt%
Omnia <sup>a</sup>	1.75
Tergitol™ 15-S-9 <sup>b</sup>	1.00
Texapon® NSO-IS (28%) <sup>c</sup>	3.60
Sodium bicarbonate <sup>d</sup>	0.10
Preservative/colorant/fragrance	<i>q.s.</i>
Water	92.55

<sup>a</sup>Omnia, CAS 53605-94-0, Eastman Chemical Company\*    <sup>b</sup>Secondary alcohol ethoxylate, 84133-50-6, Dow Chemical\*    <sup>c</sup>Sodium lauryl ether sulfate 2 mole EO, CAS 68585-34-2, BASF\*    <sup>d</sup>Sodium bicarbonate, CAS 144-55-8, Mallinckrodt\*

\*Listed as full green circle on EPA Safer Choice Safer Chemical Ingredients List and meets Safer Choice Criteria for Chemical Ingredients.

Product pH: 7–8

Product clarity: Clear

Thermally stable (1 week @ 50°C): Yes

Total actives	Wt%
Omnia	1.75
Tergitol 15-S-9	1.00
Texapon NSO-IS	1.00
Sodium bicarbonate	0.10

## Procedure

- Mix ingredients in the order listed.
- Use low-speed rolling or low-shear mixing at room temperature.

*NOTE: Omnia is an LVP-VOC, which means it is not included in the calculation of VOC of the cleaner in the U.S. Addition of defoamer would be necessary for buffer-style floor cleaning. The formulation has low odor and is water clear. The formulation can be concentrated tenfold. Addition of a preservative, colorant, and/or fragrance should be done at the discretion of the formulator.*

# Eastman OMNIA™

high-performance solvent

## Neutral-pH glass RTU

This starting point formulation was tested for efficacy in removing water spots and greasy soil from glass.

Ingredient	Wt%
Omnia <sup>a</sup>	2.0
Multitrope™ 1620 (70%) <sup>b</sup>	1.4
Multitrope™ 810 (40%) <sup>c</sup>	2.5
Isopropanol <sup>d</sup>	1.0
Preservative/colorant/fragrance	q.s.
Water	93.1

<sup>a</sup>Omnia, CAS 53605-94-0, Eastman Chemical Company\*    <sup>b</sup>Alkyl polysaccharide, CAS 68515-73-1, Croda\*    <sup>c</sup>Deconic acid potassium salt/octanoic acid potassium salt, CAS 13040-18-1/764-71-6, Croda\*    <sup>d</sup>Isopropanol, CAS 67-63-0, Sigma-Aldrich\*

\*Listed as full green circle on EPA Safer Choice Safer Chemical Ingredients List and meets Safer Choice Criteria for Chemical Ingredients.

Product pH: 7–8

Product clarity: Clear

Thermally stable (1 week @ 50°C): Yes

Total actives	Wt%
Omnia	2.0
Multitrope 1620	1.0
Multitrope 810	1.0
Isopropanol	1.0

## Procedure

- Mix ingredients in the order listed.
- Use low-speed rolling or low-shear mixing at room temperature.

*NOTE: Omnia is an LVP-VOC, which means it is not included in the calculation of VOC of the cleaner in the U.S. This product outperformed two commercial competitors in both soil removal and nonstreaking ability. Performance evaluation was performed at the listed use level. The formulation has low odor and a light yellow color. Addition of a preservative, colorant, and/or fragrance should be done at the discretion of the formulator.*

# Eastman OMNIA™

high-performance solvent

## Heavy-duty hard surface concentrate

The following starting point formulations were tested for efficacy in removing tar from aluminum.

Ingredient	Wt%
Omnia <sup>a</sup>	20.0
Glucopon® 425 N (70%) <sup>b</sup>	14.3
Steol® CA-460 (60%) <sup>c</sup>	16.7
Sodium bicarbonate <sup>d</sup>	1.0
Preservative/colorant/fragrance	q.s.
Water	48.0

<sup>a</sup>Omnia, CAS 53605-94-0, Eastman Chemical Company\*    <sup>b</sup>Alkyl polysaccharide, CAS 197099-29-9, BASF    <sup>c</sup>Ammonium laureth sulfate, CAS 67762-19-0, Stepan\*    <sup>d</sup>Sodium bicarbonate, CAS 144-55-8, Mallinckrodt\*

\*Listed as full green circle on EPA Safer Choice Safer Chemical Ingredients List and meets Safer Choice Criteria for Chemical Ingredients.

Product pH: 7–8

Product clarity: Clear

Thermally stable (1 week @ 50°C): Yes

Total actives	Wt%
Omnia	20.0
Glucopon 425 N	10.0
Steol CA-460	10.0
Sodium bicarbonate	1.0

## Procedure

- Mix ingredients in the order listed.
- Use low-speed rolling or low-shear mixing at room temperature.

## Recommended dilution

- Dilute the product 1:10 prior to use.

*NOTE: Omnia is an LVP-VOC, which means it is not included in the calculation of VOC of the cleaner in the U.S. The product is pH neutral. Performance evaluation was performed at recommended dilution—1:10. Addition of a preservative, colorant, and/or fragrance should be done at the discretion of the formulator.*

# Eastman OMNIA™

high-performance solvent

## Heavy-duty hard surface RTU-I

Ingredient	Wt%
Omnia <sup>a</sup>	2.0
Multitrope™ 1620 (70%) <sup>b</sup>	1.4
Rhodapex® CO436 (62%) <sup>c</sup>	1.7
Sodium bicarbonate <sup>d</sup>	0.1
Preservative/colorant/fragrance	q.s.
Water	94.8

<sup>a</sup>Omnia, CAS 53605-94-0, Eastman Chemical Company\*    <sup>b</sup>Alkyl polysaccharide, CAS 68515-73-1, Croda\*    <sup>c</sup>Ammonium nonylphenoxy polyethoxy sulfate, CAS 68649-55-8, Rhodia    <sup>d</sup>Sodium bicarbonate, CAS 144-55-8, Mallinckrodt\*

\*Listed as full green circle on EPA Safer Choice Safer Chemical Ingredients List and meets Safer Choice Criteria for Chemical Ingredients.

Product pH: 7–8

Product clarity: Clear

Thermally stable (1 week @ 50°C): Yes

Total actives	Wt%
Omnia	2.0
Multitrope 1620	1.0
Rhodapex CO436	1.0
Sodium bicarbonate	0.1

## Procedure

- Mix ingredients in the order listed.
- Use low-speed rolling or low-shear mixing at room temperature.

*NOTE: Omnia is an LVP-VOC, which means it is not included in the calculation of VOC of the cleaner in the U.S. This product includes a hydrotrope, Multitrope 1620, to aid in the solubilizing and emulsifying process during mixing. This product provides good foaming action. Performance evaluation was performed at the listed use level. The product can be concentrated tenfold for shipping purposes or more aggressive cleaning needs. This product can be diluted 1:5 for less aggressive soil removal. This product has a mild odor. Addition of a preservative, colorant, and/or fragrance should be done at the discretion and investigation of the formulator.*

# Eastman OMNIA™

high-performance solvent

## Heavy-duty hard surface RTU-II

Ingredient	Wt%
Omnia <sup>a</sup>	2.0
DeTropé SA45 (45%) <sup>b</sup>	2.2
Ammonium lauryl sulfate (30%) <sup>c</sup>	3.3
Sodium bicarbonate <sup>d</sup>	0.1
Preservative/colorant/fragrance	q.s.
Water	92.4

<sup>a</sup>Omnia, CAS 53605-94-0, Eastman Chemical Company\*    <sup>b</sup>Sodium alkanoate, CAS 141-53-7, DeForest\*    <sup>c</sup>Ammonium lauryl sulfate, CAS 2235-34-3, Sigma-Aldrich\*    <sup>d</sup>Sodium bicarbonate, CAS 144-55-8, Mallinckrodt\*

\*Listed as full green circle on EPA Safer Choice Safer Chemical Ingredients List and meets Safer Choice Criteria for Chemical Ingredients.

Product pH: 7–8

Product clarity: Clear

Thermally stable (1 week @ 50°C): Yes

Total actives	Wt%
Omnia	2.0
DeTropé SA45	1.0
Ammonium lauryl sulfate	1.0
Sodium bicarbonate	0.1

## Procedure

- Mix ingredients in the order listed.
- Use low-speed rolling or low-shear mixing at room temperature.

*NOTE: Omnia is an LVP-VOC, which means it is not included in the calculation of VOC of the cleaner in the U.S. This product makes use of a combination of two anionic surfactants, DeTropé SA45 and ammonium lauryl sulfate. This provides streak-free and robust cleaning efficacy at a ready-to-use level. Performance evaluation was done at the listed use level. The product can be concentrated tenfold for shipping purposes or more aggressive cleaning needs. This product has a mild odor and slight yellow color. Addition of a preservative, colorant, and/or fragrance should be done at the discretion and investigation of the formulator.*

# Eastman OMNIA™

high-performance solvent

## Heavy-duty degreaser concentrate

This starting point formulation was tested for efficacy in removing tar from aluminum.

Ingredient	Wt%
Omnia <sup>a</sup>	20.0
Bio-Soft® N91-8 <sup>b</sup>	10.0
Ammonium lauryl sulfate (30%) <sup>c</sup>	33.4
Sodium bicarbonate <sup>d</sup>	1.0
Preservative/colorant/fragrance	<i>q.s.</i>
Water	35.6

<sup>a</sup>Omnia, CAS 53605-94-0, Eastman Chemical Company\*    <sup>b</sup>Linear alcohol (C9-C11) ethoxylate POE-8, CAS 68439-46-3, Stepan\*    <sup>c</sup>Ammonium lauryl sulfate, CAS 2235-34-3, Sigma-Aldrich\*

<sup>d</sup>Sodium bicarbonate, CAS 144-55-8, Mallinckrodt\*

\*Listed as full green circle on EPA Safer Choice Safer Chemical Ingredients List and meets Safer Choice Criteria for Chemical Ingredients.

Product pH: 7–8

Product clarity: Clear

Thermally stable (1 week @ 50°C): Yes

Total actives	Wt%
Omnia	20.0
Biosoft N91-8	10.0
Ammonium lauryl sulfate	10.0
Sodium bicarbonate	1.0

## Procedure

- Mix ingredients in the order listed.
- Use low-speed rolling or low-shear mixing at room temperature.

## Recommended dilution

- Dilute the product 1:10 prior to use.

*NOTE: Omnia is an LVP-VOC, which means it is not included in the calculation of VOC of the cleaner in the U.S. This formulation can be used to remove various medium- and high-weight greases and oils along with soap scum. Performance evaluation was conducted at the recommended dilution—1:10. Addition of a preservative, colorant, and/or fragrance should be done at the discretion of the formulator.*

Eastman **OMNIA™**  
high-performance solvent

## Material compatibility

### A safer solvent for surfaces—the impact of Omnia on a variety of substrates

When creating all-purpose cleaners or formulations for specific applications, formulators must consider how the ingredients in their products affect surfaces. Because Omnia achieves optimal performance within a neutral-pH formulation range (4–8), the final cleaning product is safer for surfaces than formulations that are either extremely acidic or alkaline.

Eastman internal testing demonstrates the safety of Omnia on a wide range of common substrates and materials. The tests evaluated both neat solvents and ready-to-use cleaners. When applicable, tests followed ASTM standards. When it comes to material compatibility, results show Omnia is as safe or safer than many other commonly used solvents.

### Disclaimer

Neither Eastman Chemical Company nor its marketing affiliates shall be responsible for the use of this information, or of any product, method, or apparatus mentioned, and you must make your own determination of its suitability and completeness for your own use, for the protection of the environment, and for the health and safety of your employees and purchasers of your products. No warranty is made of the merchantability or fitness of any product; and nothing herein waives any of the seller's conditions of sale.

### Safe handling

Safety Data Sheets providing safety precautions that should be observed in handling and storing Eastman products are available on request. You should obtain and review the available material safety information before handling any of these products. If any materials mentioned are not Eastman products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be observed.

# Eastman OMNIA™

high-performance solvent

## Building material testing, phase 1

Omnia and three other solvents were evaluated in RTU cleaners consisting of 2.25% solvent, 94.5% water, 0.5% sodium carbonate, 0.75% surfactants, and 2% EDTA. Each solvent was also tested on the substrates in its pure form. The methodology involved placing small coupons in a vial containing either neat solvent or an RTU formulation. The substrate was observed for defects and deterioration over the prescribed time period.

Neat solvent, 2-hour exposure					
	Solvent	Omnia	BGE	PnP	PnB
Substrate	Polished aluminum	NC	NC	NC	NC
	Vinyl floor tile	NC	NC	NC	NC
	Balsa wood	NC	NC	NC	NC
	Styrofoam	NC	NC	NC	NC
	Soft foam	NC	NC	NC	NC
	Formica	NC	NC	NC	NC

Neat solvent, 18-hour exposure					
	Solvent	Omnia	BGE	PnP	PnB
Substrate	Polished aluminum	NC	NC	NC	NC
	Vinyl floor tile	SS	SS	SS	SS
	Balsa wood	NC	NC	NC	NC
	Styrofoam	NC	NC	NC	NC
	Soft foam	NC	NC	NC	NC
	Formica	NC	NC	NC	NC

Formulated RTU, 18-hour exposure					
	Solvent	Omnia	BGE	PnP	PnB
Substrate	Polished aluminum	NC	NC	NC	NC
	Vinyl floor tile	NC	NC	NC	NC
	Balsa wood	NC	NC	NC	NC
	Styrofoam	NC	NC	NC	NC
	Soft foam	NC	NC	NC	NC
	Formica	NC	NC	NC	NC

Key	
NC	No change
SS	Slight swelling
D	Discolored

Legend	
BGE	Butyl glycol ether
PnP	Propylene glycol <i>n</i> -propyl ether
PnB	Propylene glycol <i>n</i> -butyl ether

## Eastman OMNIA™

high-performance solvent

### Building material testing, phase 2

This test on waxed vinyl floor tile included Omnia and four other solvents. Each was evaluated in RTU cleaners consisting of 2% solvent, 95.9% water, 0.1% sodium carbonate, and 2% surfactants. Each solvent was also tested on the substrate in its neat form. The methodology involved placing 50 µL of solvent or formulated cleaner onto vinyl floor tile coated with a commercial acrylic copolymer floor wax. The solvent droplet was covered by a watch glass and allowed to stand for specific time intervals. Following exposure, the watch glass was removed and the liquid removed gently with a Kimwipe™. Visual observations were made after 30 minutes, 1 hour, and 24 hours.

Appearance of waxed vinyl floor tile				
Exposure time		0.5 hour	1 hour	24 hours
Cleaning agent	Neat Omnia	SD	SD	MWB
	2% Omnia RTU	NE	NE	NE
	Neat BGE	MWB	WB	SD & EWB
	2% BGE RTU	NE	NE	NE
	Neat DPnB	SD	SD	MWB
	2% DPnB RTU	NE	NE	NE
	Neat DB	SD	SD & MWB	EWB
	2% DB RTU	NE	NE	NE
	Neat <i>d</i> -limonene	EWB & WR	EWB & WR	EWB, WR, & SD
	2% <i>d</i> -limonene RTU	SD	SD	WR

Key	
NE	No effect
SD	Surface dulling
MWB	Mild wax bubbling
EWB	Extensive wax bubbling
WR	Wax removal

Legend	
BGE	Butyl glycol ether
DPnB	Dipropylene glycol <i>n</i> -butyl ether
DB	Diethylene glycol monobutyl ether

# Eastman OMNIA™

high-performance solvent

## Building material testing, phase 3

Acrylic caulk was exposed to a bathroom RTU cleaner with various solvents, including Omnia. The RTU consisted of 2% solvent, 95.9% water, 0.1% sodium carbonate, and 2% surfactants. Scientists applied a bead of caulk to ¼" aluminum coupons which were allowed to dry/cure for 24 hours. The coupon with the bead of dried/cured caulk was placed in a screw-top glass vial containing a measured amount of solvent or solvent solution, depending on concentration. The coupon was removed after a specified time and weighed to assess whether any of the polymer had dissolved during exposure. Scientists also checked for other factors during testing, including swelling and discoloration. Observations were made at set intervals to determine the solvents' impact on the caulk.

Acrylic caulk			
Exposure time		8 hours	24 hours
Cleaning formulation	No solvent RTU	NC	NC
	BGE RTU	NC	W*
	DPnB RTU	NC	W*
	Omnia RTU	NC	W*
	<i>d</i> -limonene RTU	NC	W*

\*Whitening subsided after 4 hours.

Key	
NC	No change
SS	Slight swelling
S	Swelling
ES	Extreme swelling
W	Whitening

Legend	
BGE	Butyl glycol ether
DPnB	Dipropylene glycol <i>n</i> -butyl ether

## Eastman OMNIA™

high-performance solvent

### Building material testing, phase 4

This test involved exposing silicone caulk to Omnia and four other solvents. Observations were made after 24 hours to determine the solvents' impact on the caulk. Scientists applied a bead of caulk to ¼" aluminum coupons which were allowed to dry/cure for 24 hours. The coupon with the bead of dried/cured caulk was placed in a screw-top glass vial containing a measured amount of solvent or solvent solution, depending on concentration. The coupon was removed after a specified time and weighed to assess whether any of the polymer had dissolved during exposure. Scientists also checked for other factors during testing, including swelling and discoloration. Observations were made at set intervals to determine the solvents' impact on the caulk.

Silicone caulk		
Exposure time		24 hours
Solvent	Water	NC
	BGE	NC
	DPnB	NC
	Omnia	NC
	<i>d</i> -limonene	NC

Key	
NC	No change
SS	Slight swelling
S	Swelling
ES	Extreme swelling

Legend	
BGE	Butyl glycol ether
DPnB	Dipropylene glycol <i>n</i> -butyl ether

# Eastman OMNIA™

high-performance solvent

## Gasket and O-ring testing

Scientists tested six types of common gasket and O-ring material by submersing drum sidewall and a vented Tri-Sure bung plug in neat Omnia. These materials remained submersed for 1 week at 100°C. At the end of the week, observations were made to determine changes in weight, volume, and thickness.

	Property retention	Weight	Volume	Hardness	Quality status pass/fail
Gasket or O-ring material	White EPDM	E	E	E	Pass
	Kalrez® Grade 4079	E	E	E	Pass
	Kalrez Grade 6375	E	E	E	Pass
	Black EPDM Grade 70	S	S	U	Fail
	Black NBR Rubber	U	U	U	Fail
	Black Viton® A75	U	U	U	Fail

Key	
E	Excellent (a change ranging from no change to 10%)
S	Satisfactory (a change ranging from 11% to 20%)
U	Unacceptable (a change of more than 30%)

Legend	
EPDM	Ethylene propylene diene monomer polymers
NBR	Nitrile butadiene rubber

# Eastman OMNIA™

high-performance solvent

## Plastic testing

Omnia was evaluated in a 2% aqueous RTU formulation and an 18% concentrate and as a neat solvent by placing a small quantity under a watch glass on various plastics and then observing the changes at specified times. The RTU cleaner consisted of 2% solvent, 95.9% water, 0.1% sodium carbonate, and 2% surfactants.

	Substrate	Eastman Tritan™ copolyester	Eastman Spectar™ copolyester	Polycarbonate	ABS
Solvent & exposure time	2% Omnia RTU, 24 hours	Clear, no effect	Clear, no effect	Clear, no effect	Clear, no effect
	18% Omnia concentrate, 24 hours	Clear, no effect	Clear, no effect	Clear, no effect	Clear, no effect
	100% Omnia, 1 hour	Clear, no effect	Clear, no effect	Clear, no effect	Clear, no effect
	100% Omnia, 24 hours	Clear, no effect	Clear, no effect	Clear, no effect	Rough and softened

### Legend

ABS | Acrylonitrile butadiene styrene