

# PRODUCT SPECIFICATIONS – GRUPO CIPATEX



N° EP: 607

Elaboration: 12/04/2018

Review: 00

Date Review:

## Product

Cipageo Hipertech R

## Uses

Secondary Containment;  
Provisional Containment (Up to 30 days for products type A and up to 10 days for products type B, according to the chemical table attached, after a liquid leak).

## Composition

Vinyl Polychloride Alloy (PVC-R Alloy) Geomembrane Structured with a Polyester fabric.

## Features and Benefits

- ✓ Flexibility and weldability (allowing easy repair);
- ✓ Resistance to natural aging;
- ✓ Resistance to mechanical impacts;
- ✓ Weather resistance (when formulated for exposed application);
- ✓ Low temperature resistance;
- ✓ Allows to be welded in large panels generating economy and speed in the installation;
- ✓ Excellent dimensional stability;
- ✓ Facility and agility in the installation;
- ✓ Conformability of the most diverse surfaces;
- ✓ High puncture resistance.

## Product Characteristics

Material supplied in rolls or panels. For the case of panels consult the factory about the dimensions;  
Color: Gray  
Rolls supplied in the width of 1.40 and 2.20 meters.

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## Technical Characteristics

Properties	Unit	Limits	Test Method
Thickness	mm	0,76 ± 0,07	ASTM D 751
Weight	g/m <sup>2</sup>	970 900 a 1100	ASTM D 751
Tear Strength Trapezoidal Longitudinal	N	200 175 a 245	ASTM D 4533
Tear Strength Trapezoidal Transversal	N	175 175 a 245	ASTM D 4533
Strength at Break Longitudinal	N/5cm	Min. 2260	ASTM D 751
Strength at Break Transversal			
Dimensional Stability Longitudinal 100° C a 1h	%	Max. - 0,5	ASTM D 1204 Method B
Dimensional Stability Transversal 100° C a 1h			
Resistance of Adhesion to the Longitudinal Substrate	daN/5cm	Min. 5	ASTM D 413 Type A
Resistance of Adhesion to the Transversal substrate			
Water Absorption 7 days 21° C	Kg/m <sup>2</sup>	Max. 0,025	ASTM D 471 - 12 SECTION 12
Water Absorption 7 days 100° C			
Capillarity Longitudinal	cm	Max.3,0	ASTM D 751
Capillarity Transversal			

(\*)Tests in general must be carried out in controlled environments according to the technical standard of reference.

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## Packaging and Storage

It is recommended that the geomembrane supplied in rolls should be stored in the original packaging, in horizontal position, in flat areas without piercing elements and in dry and ventilated locals. They should be protected from direct sunlight, rain, frost and so on.

## Stacking Recommendation

Roll Weight	Stacking
0 a 100 Kg	10 rolls
101 a 200 Kg	6 rolls
201 a 300 Kg	4 rolls
301 a 400 Kg	3 rolls
Above 401 Kg	2 rolls

## Application/Limitation Conditions

It is recommended that welding, installation and related services be always performed by properly qualified professionals.

Colors and shades are subject to natural change over time.

For any and all uses of the Cipageo Hipertech R other than water containment, it is necessary to consult the manufacturer.

In the event of repairs (holes, tears, etc.) of the Cipageo Hipertech R, the aesthetic issue of the product, compared to the material originally supplied, will be prejudiced.

In case of products for protected use, it is necessary to cover it with a minimum of 35 cm of soil clean, cohesive and free of puncture elements that can damage the geomembrane. This protection must remain constant throughout its useful life. The design must predict, depending on the granulometry of the soil, the need for geotextile protection on both the top and bottom of the geomembrane.

In cases of no specific projects for slope inclination, it is recommended that slopes have a maximum slope from 3 (H) to 1 (V) for land.

Cipageo Hipertech R should not be placed on materials that could attack it, such as materials derived from asphalt and old waterproofing.

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In earthworks, such as ponds and lakes, one must consider the effect of erosion and wave action. It is highly recommended to use rip-rap (rockfall), protection of slopes with concrete, and predict erosion control.

In case of supply of the Cipageo Hipertech R in pre-welded panels, consult the manufacturer regarding the dimensions available.

It is recommended that the product be applied and handled at 5° C to 100° C for both room temperature and material temperature.

In the case of welding, it is recommended to evaluate the environmental conditions, the cleaning of the surfaces to be welded, as well as the machine parameters, such as speed, pressure and temperature (check with the equipment manufacturer). The use of solvents or glues is not recommended, unless agreed by the manufacturer.

### Legal Aspects

The information contained in this specification is intended for the understanding of the characteristics and applications of Hipertech R, having been elaborated based on the existing literature and, in results of laboratory analysis of Cipageo Hipertch R.

This specification does not constitute a guarantee nor an assertion of suitability of the user, since it is necessary to analyze the place and the purpose of the application, since the conditions of the installation and application site are variables that influence the characteristics of the product.

The decision to use the Cipageo Hipertech R is solely and exclusively the responsibility of the buyer.

Observe the rules, standards and installation practices in force at each location, as well as the approval procedures and technical specifications of the project.

In case of purchase for resale, please observe the advertising, packaging, labeling, composition, etc., as well as inform and guide the end user about the information and guidelines related to Hipertech R.

The manufacturer shall not be liable for damages or losses arising from irregularities and defects from installation and / or welding of the Cipageo Hipertech R as well as from improper use of the product.

For exposed use of Cipageo Hipertech R please refer to the warranty conditions.

Always check for the updated version of this specification.

The information contained in this specification may be updated without notice.

This specification cancels those previously issued.

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## Safety Information

For further information on the storage, handling and disposal of waste see our Material Safety Data Sheet (MSDS) where it provides clarification on various aspects of the Cipageo Hipertech R product regarding safety, health and the environment.

## Warranty Conditions

Hipertech R is guaranteed for 10 years *pro-rata* due to weathering, and up to 30 days for products A and up to 10 days for products B in the attached table, after eventual leakage of stored liquid. An immersion test is required with subsequent testing and approval by Cipatex.

## Instruction for Tests of Immersion of Hipertech R and Warranty Claims

- ✓ Insert 6 (six) samples (A4 size pads) of Hipertech R into the liquid/solution to be contained.
- ✓ After the completion of full 30 days, retrieve 3 (three) of the samples. Rinse the samples with fresh water and then dry them out.
- ✓ Send the three samples to CIPATEX CIPAGEO's technical staff.
- ✓ Keep the remaining samples in case of additional testing.
- ✓ Fill in the "Geomembrane Application and Utilization Form" and return to CIPATEX CIPAGEO's technical staff.

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## Chemical and Environmental Resistance

### Cipageo Hipertech R Fluid Resistance Guidelines

#### CHEMICAL RESISTANCE CHART

**Scope:** Cipageo® Hipertech R    **Revision:** 00    **Date:** January 2018

This Chemical Resistance Chart is a result of laboratory tests and is offered for information purposes only. The degree of chemical attack on any material is governed by conditions under which it is exposed. Client/User should make its own determination of compatibility before using any Cipatex product. It is the sole responsibility of the Client/User to determine whether any product is suitable for his/her actual or intended uses.

No guarantee, warranty, or representation is made, intended, or implied as to the correctness or sufficiency of the Chemical Compatibility Guide or any information supplied herein.

When considering Hipertech R for specific applications, it is suggested that a sample be tested on the current service before specifying the product. Whenever impracticable, tests should be devised to simulate actual service conditions as quickly as possible.

CHEMICALS	CONCENTRATION	RATING
Acetic Acid	50%	B
Acetic Acid	5%	A
Acetic Acid	100 %	X
Sulfuric Acid	50%	A
Aqua Regia		X
Phosphoric Acid	5%	A
Phosphoric Acid	50%	B
Sodium Hydroxide	60%	A
Ethylene Glycol		A
Ethyl Acetate	50%	D
Corn Oil		A
Calcium Chloride Solutions		T

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Benzene		X
Kerosene		C
Chlorine Solution	20%	A
MEK ( Methyl Ethyl Ketone)		X
Methyl isobutyl ketone		X
Potassium chloride		T
SAE 5W-30		A
Phenol		X
ASTM Fuel A	( 100% Iso-octane)	B
Magnesium Hydroxide		T
Crude Oil		A
Diesel Fuel		B
Calcium carbonate		T
Ethyl Alcohol		B
Xylene		X
Gasoline		C
Adipate Plasticizer		X
Isoprophyl Alcohol		B
Phthalate Plasticizer		D
Sodium Chloride	25%	A
Zinc chloride		T
Toluene		D

A - Fluid has little or no effect on geomembrane

B - Fluid has minor to moderate effect on geomembrane

C - Fluid has severe effect on geomembrane

D - Material doesn't resist to fluid

T - No data: likely to be acceptable

X - No data: not likely to be acceptable

Ratings are based on visual and physical examination of samples after removal from the test chemical after the samples of the material were immersed for 30 days at room temperature.

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## FACTORS AFFECTING RESISTANCE

Chemical reactions can be very complex. There are so many factors affecting the reaction of a geomembrane to chemical attack that it is impossible to construct charts to cover all possibilities.

Some of the factors affecting chemical resistance are:

- ✓ Temperature;
- ✓ Chemical (or mixture of chemicals) present;
- ✓ Concentration of chemicals;
- ✓ Duration of exposure;
- ✓ Frequency of exposure.

## Notes

- ✓ This Chemical Compatibility Guide express our best knowledge on the subject to date, not expressing any warranty for the product;
- ✓ The data above are the results of laboratory tests and is intended to serve only as a guide;
- ✓ We recall that even 2 or more chemicals are recommended, when mixed they can generate a third product that is incompatible with the geomembrane;
- ✓ Remind that the geomembrane is part of a waterproofing system;
- ✓ In case of any questions, consult our technical support;
- ✓ Cipatex reserves the right to change this chart at any time;
- ✓ Always check the updated version of this chart.

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## GEOMEMBRANE APPLICATION AND UTILIZATION FORM

This form has to be filled by the Client/Owner and be returned signed to Cipatex Cipageo technical staff.

**Client Name and Address:**

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**Physical Localization of the Installation of the Membrane:**

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**Expected Installation Date:**

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**Expected Start Date of Service:**

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**Application Description:**

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**Physical Characteristics of the Application:**

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**Chemical/Liquid Description:**

(Describe the contents of the liquid, including the pollutants and expected extreme temperatures, both in the basin and at the specific point in the application. Attach liquid chemical analysis, composition taken on representation basis).

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**Operations Details:**

(Describe the operation of the installation, such as filling times, changes in liquid level, operating temperatures, etc).

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**Performance Requirements:**

(Indicate any other requirements, such as fines, penalties, etc.).

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Cipatex will issue a guarantee, understanding that the information sent by the customer is correct. If it is subsequently found that they are not correct, the warranty will cease immediately.

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OWNER/CLIENT SIGNATURE

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### WARRANTY TERM – HIPERTECH R

Provided that the following provisions are complied with, Cipatex warrants the use of Hipertech R under the terms of the enclosed warranty.

The guarantee is limited, to the provision for credit, repair or replacement (according to Cipatex's decision), within the time of 10 years, referring only to weathering actions, and up to 30 days referring to products A and up to 10 days referring to products B of the attached table, if found material defective inherent in the production process. For this adjustment, the attached "pro-rata" table will be used, leaving the customer to pay the difference.

The warranty will be null and void if the geomembrane has been exposed to harmful chemicals, damaged by machinery, equipment or people, abnormal weather conditions, falling objects, explosions, fire, external forces, design errors, errors in installation, or any use other than what was agreed upon. The client must complete, sign and provide to Cipatex, prior to the delivery of the geomembrane, the document detailing the use of the geomembrane.

Complaints regarding the guarantee must be formally made to Cipatex in written format within 20 days after the occurrence of the event. Failing this warning, the warranty is void. Cipatex has the right to inspect the geomembrane in the event of a claim, and this right is denied.

### Exclusion of Other Warranties

EXCEPT FOR THE EXPRESS WARRANTY ABOVE, THERE ARE NO OTHER WARRANTIES, INCLUDING ANY IMPLIED WARRANTIES, only Cipatex may provide the warranty.

### Limitation of Liability

Cipatex will not be liable for contract or extra liability (including negligence) for loss of profits or revenue, loss of equipment or facilities, cost of capital or for any damages, indirect, incidental or consequential damages of any nature resulting or in any way related to geomembrane, its design, use, any inability to use the same or any delay in delivery of the same, it being understood and agreed that the sole and exclusive remedy in respect of the defective merchandise shall be the repair, correction or replacement in accordance with the foregoing provisions. However, if the geomembrane proves to be so defective that repair or replacement defects can not be repaired, the customer's sole and exclusive remedy shall be the reimbursement of the purchase price of the geomembrane, or that portion thereof, which may be defective.

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Warranty is "PRO-RATA". Warranty is valid from Invoice Date, in conjunction with the terms and safeguards used by Cipatex.

"Pro-Rata" Warranty means that if the Cipageo® Hipertech R fails before the end of the warranty cycle and it is confirmed that it is due to the product mis-function, the manufacturer replaces it at a cost that depends on the age of the item at the time of complaint.

In the case of Cipageo Hipertech R Warranty Term, Cipatex will replace the cost of the defective geomembrane according to the Warranty Life detailed below:

1st Year	100%
2nd Year	90%
3rd Year	80%
4th Year	70%
5th Year	60%
6th Year	50%
7th Year	40%
8th Year	30%
9th Year	20%
10th Year	10%

CIPATEX RESERVES THE RIGHT TO MODIFY THIS INFORMATION WITHOUT PRIOR NOTICE.

If further information is required, contact Cipatex technical team.

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OWNER/CLIENT SIGNATURE

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