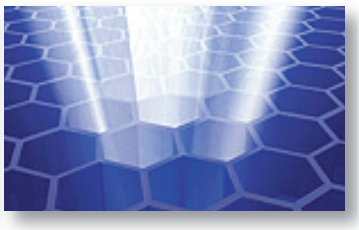
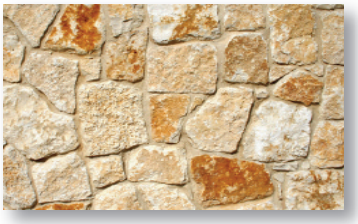
Products and Application

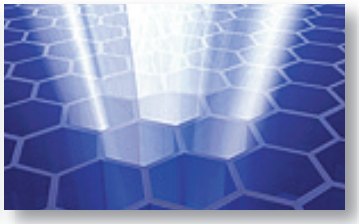





2012

Products and Application






Products:

Application:

Product Data Sheet

Nanotechnology is one of the most promising technologies of the world. It is less a technology - it is more an umbrella term for a multitude of applications and products which consist of tiny particles and thereby get very special and even complete new properties.

CCM®titan uses the property of photocatalytic titanium dioxide. This technology is not new but due to advanced manufacturing techniques, smaller dimensions of particles and doping with noble metals new applications were found, which were considered as utopia recently.

CCM®titan-products are photocatalytic. Exposed to light TitanProtect® produces oxygen radicals on the surface. The activated oxygen decomposes organic molecules and dirt particles that get in touch with the surface. This way odorous substances, air pollutants, viruses, spores and bacteria will be destroyed.

Ti 2201

Description:

Ti 2201 is a product of the chemical nanotechnology. Its function is based on the principle of photocatalysis. The application causes a super hydrophilic surface. Dirt particles will be corroded by the application and washed away by the rain. The coated pane remains clear and transparent. There will be no annoying drop formation.

Application Area:

The application is possible on all even and polished surfaces like steel, flagging or glass.

This product is optimized for:

- **glass fronts**
- **window panes**
- **shop windows**
- **winter gardens**
- **glazed ceramic tiles**

Properties:

- self-cleaning
- super hydrophilic
- anti fogging

Primer:

No primer needed.

Form of application:

HVLP-spray-technique is recommended. Please find detailed information to this form of application in the application-data-sheet.

Technical information:

Ingredients:	TiO_2 , WO_3 , SiO_2 , water, alcohol
Appearance:	transparent - opaque liquid
Active material:	ca. 1,3 %
Effective light spectrum:	up to 475 nm
PH value:	ca. 5,5
Primary particle size:	8 - 20 nm
Crystal structure TiO_2:	anatase
Agglomeration index:	2-4
Relative density:	0,915 g/ml
Consumption:	ca. 35 - 40 ml /m^2

Drying:

15 minutes / 72 hours	at 20°C
>1 minute / 60 minutes	at 75°C
<1 minute / 15 minutes	at 150°C

Drying time depends on temperature and humidity during process of application.

Defensibility of the coating:

At least 10 years when application according to instructions.

Status of registration:

Product and/or ingredients are listed in:
CAS, EINECS, TSCA, AICS, CEPA, MITI

Storage:

Six months in closed original container. Store in the dark. Storage temperature: 5 to 45 C°

Package size:

5 litre, 25 litre in plastic container
100 litre, 200 litre in storage-jar

References:

Follow general danger warnings / safety data sheet during handling chemicals. Never mix chemical products. Product contains alcohol. Avoid smoking and open fire during application.

Product Data Sheet

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CCM®titan-products are photocatalytic. Exposed to light TitanProtect® produces oxygen radicals on the surface. The activated oxygen decomposes organic molecules and dirt particles that get in touch with the surface. This way odorous substances, air pollutants, viruses, spores and bacteria will be destroyed.

Ti 2202

Description:

Ti 2202 is an aqueous titanium dioxide solution based on the chemical nanotechnology. Its function is based on the principle of photocatalysis. The application causes a super hydrophilic surface. Organic substances will be destroyed. When applicating Ti 2202 on polymeres or synthetic fibre cloth the product shows very good moistening property.

Application area:

The application is possible on all even and / or polished surfaces.

This product is optimized for:

- **synthetic surfaces**
- **synthetic cloth**
- **varnished surfaces**
- **acryl glas**

Properties:

- self-cleaning
- super-hydrophilic
- anti-fogging

Primer:

When application on organic surface a primer (TP2220) is recommended for protection against oxidation by the photocatalyst.

Form of application:

HVLP-spray-technique is recommended. Please find detailed information to this form of application in the application data sheet.

Technical data:

Ingredients:	TiO_2 , water
Appearance:	transparent- yellowish liquid
Active material:	ca. 0,8 %
Effective light spectrum:	up to 475 nm
PH value:	8,0 +/- 1,0
Primary particle size:	<8 nm
Crystal structure TiO_2:	anatase
Agglomeration index:	2-4
Relative density:	1,007 g/ml
Consumtion:	see appl.-data-sheet

Drying:

30 minutes / 10 days	at 20°C
15 minutes / 3 hour	at 75°C

Drying time depends on temperature and humidity during process of application.

Defensibility of coating:

At least 10 years when application according to instructions.

Status of registration:

Product and/or ingredients are listet in:
CAS, EINECS, TSCA, AICS, CEPA, MITI

Storage:

Twelve months in closed original container. Store in the dark. Storage temperature: 5 bis 45 C°

Package size:

5 litre, 25 litre in plastic-container
100 litre, 200 litre in storage-jar

References:

Follow general danger warnings / safety data sheet during handling chemicals. Never mix chemical products.

Product Data Sheet

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CCM®titan uses the property of photocatalytic titanium dioxide. This technology is not new but due to advanced manufacturing techniques, smaller dimensions of particles and doping with noble metals new applications were found, which were considered as utopia recently.

CCM®titan-products are photocatalytic. Exposed to light TitanProtect® produces oxygen radicals on the surface. The activated oxygen decomposes organic molecules and dirt particles that get in touch with the surface. This way odorous substances, air pollutants, viruses, spores and bacteria will be destroyed.

Ti 2203

Description:

Ti 2203 is an aqueous titanium dioxide solution based on the chemical nanotechnology. Its function is based on the principle of photocatalysis. The application causes a super hydrophilic and antibacterial surface. Organic substances, viruses, germs and bacteria will be destroyed. When applicating Ti 2203 on metallic surfaces the product shows very good moistening property.

Application area:

The application is possible on all even and / or polished surfaces.

This product is optimized for:

- **steel**
- **stainless steel**
- **aluminium**
- **unreated nonferrous heavy metal**

Properties:

- self-cleaning
- antibacterial surfaces
- hydrophilic
- anti-fingerprint

Primer:

Improving the bond of the coated surface, we advice you to use a primer.

Form of application:

HVLP-spray-technique is recommended. Please find detailed information to this form of application in the application data sheet.

Technical data:

Ingredients:	TiO_2 , water
Appearance:	transparent- yellowish liquid
Active material:	ca. 0,85 %
Effective light spectrum:	up to 475 nm
PH value:	8,0 +/- 1,0
Primary particle size:	<8 nm
Crystal structure TiO_2:	anatase
Agglomeration index:	2-4
Relative density:	1,007 g/ml
Consumtion:	see appl.-data-sheet

Drying:

30 minutes / 10 days	at 20°C
15 minutes / 3 hour	at 150°C

Drying time depends on temperature and humidity during process of application.

Defensibility of coating:

At least 10 years when application according to instructions.

Status of registration:

Product and/or ingredients are listet in:
CAS, EINECS, TSCA, AICS, CEPA, MITI

Storage:

Twelve months in closed original container. Store in the dark. Storage temperature: 5 bis 45 C°

Package size:

5 litre, 25 litre in plastic-container
100 litre, 200 litre in storage-jar

References:

Follow general danger warnings / safety data sheet during handling chemicals. Never mix chemical products.

Product Data Sheet

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CCM®titan-products are photocatalytic. Exposed to light TitanProtect® produces oxygen radicals on the surface. The activated oxygen decomposes organic molecules and dirt particles that get in touch with the surface. This way odorous substances, air pollutants, viruses, spores and bacteria will be destroyed.

Ti 2204



Description:

Ti 2204 is a product of the chemical nanotechnology. Its function is based on the principle of photocatalysis. The application causes a super-hydrophilic surface. Dirt particles will be corroded by the application and washed away by the rain. Due to an advanced bonding capacity the product is applicable on all even and non-porous surfaces.

Application area:

- **natural stone**
- **marble**
- **granite**
- **unglazed flagging**

This product is optimized for even, non-porous or polished surfaces

Properties:

- self-cleaning
- super-hydrophilic
- prevention of algae & moss
- odour neutralisation

Primer:

No primer needed.

Form of application:

HVLP-spray-technique is recommended.
rolling, coating, dipping, spraying

Please find detailed information to this form of application or industrial application in the application data sheets.

Technical information:

Ingredients:	TiO_2 , water
Appearance:	transparent- yellowish liquid
Active material:	ca. 0,9 %
Effective light spectrum:	up to 475 nm
PH value:	ca. 8,0
Primary particle size:	<8 nm
Crystal structure TiO_2:	anatase
Agglomeration index:	2-4
Relative density:	1,008 g/ml
Consumption:	see appl. data sheet

Drying:

30 minutes / 7 days	at 20°C
15 minutes / 120 minutes	at 75°C
5 minutes / 30 minutes	at 150°C

Drying with high temperature is possible. Drying time depends on trempertaure and humidity during process of application.

Defensibility of the coating:

At least 10 years when application according to instructions.

Status of registration:

Product and/or ingredients are listet in:
CAS, EINECS, TSCA, AICS, CEPA, MITI

Storage:

Twelve months in closed original container.
Store in the dark. Storage temperature: 5 to 45 C°

Package size:

5 litre, 25 litre in plastic container
100 litre, 200 litre in storage-jar

References:

Follow general danger warnings / safety data sheet during handling chemicals. Never mix chemical products.

Product data sheet

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CCM®titan-products are photocatalytic. Exposed to light TitanProtect® produces oxygen radicals on the surface. The activated oxygen decomposes organic molecules and dirt particles that get in touch with the surface. This way odorous substances, air pollutants, viruses, spores and bacteria will be destroyed.

Ti 2205

Description:

Ti 2205 is a product of the chemical nanotechnology. Its function is based on the principle of photocatalysis. The application causes an antibacterial surface. The product is destined for applicating all kinds of cloths. Odorous substances in textiles and its surrounding compartment air will be decomposed actively.

Application area:

The application is possible on all even and/or structured textile surfaces.

This product is optimized for:

- ► **Application of textiles of all kinds**
- ► **Application of technichal cloth**

Properties:

- desinfection
- odour neutralisation
- air cleaning

Primer:

When application on organic surface a primer (Ti 2221) is recommended for protection against oxidation by the photocatalyst.

Form of application:

Dipping is recommended.
HVLP-technique, rolling, painting, spraying is possible.

Please find detailed information to forms of application in the application data sheets.

Technical information:

Ingredients:	TiO_2 , water
Appearance:	yellowish-transparent liquid
Active material:	0,75 - 1,0 %
Effective light spectrum:	up to 475 nm
PH value:	ca. 8,0
Primary particle size:	<8 nm
Crystal structure TiO_2:	anatase
Agglomeration index:	2-4
Relative density:	1,095 g/ml
Consumption:	see appl. data sheet

Drying:

30 minutes / 7 days	at 20°C
15 minutes / 120 minutens	at 75°C

Drying time depends on temperature and humidity during process of application.
Feed of heat accelerates the drying process.

Status of registration:

Product and/or ingredients are listed in:
CAS, EINECS, TSCA, AICS, CEPA, MITI

Transport:

No dangerous liquid for air-, sea- and rail transports.

Storage:

Twelve months in closed original container.
Store in the dark. Storage temperature: 5 to 45 C°

Package size:

5 litre, 25 litre in plastic container
100 litre, 200 litre in storage-jar

References:

Follow general danger warnings / safety data sheet during handling chemicals. Never mix chemical products.

Product Data Sheet

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CCM®titan-products are photocatalytic. Exposed to light TitanProtect® produces oxygen radicals on the surface. The activated oxygen decomposes organic molecules and dirt particles that get in touch with the surface. This way odorous substances, air pollutants, viruses, spores and bacteria will be destroyed.

Ti 2206

Description:

Ti 2206 is a product of the chemical nanotechnology. Its function is based on the principle of photocatalysis. The application causes an anti microbial surface. Viruses, germs and bacteria will be decomposed actively. Due to the doping with nano - silver the titanium dioxide is able to work in less light.

Application area:

The application is possible on all even and/or structured surfaces.

This product is optimized for:

- **Application of hygienic areas of all kinds (medicine, heealth, gastronomy)**
- **Application of medical equipment, inventory, protective clothing**
- **Application of air filter for desinfection**
- **Internal coating of cooling systems**

Properties:

- desinfection
- odour neutralisation

Primer:

When application on organic surface a primer is recommended for protection against oxidation by the photocatalyst.

Form of application:

HVLP-spray-technique is recommended.
Rolling, painting, spraying is possible.

Please find detailed information to HVLP-technique in the application data sheet.

Technical Data:

Ingredients:	TiO_2 , silver, water
Appearance:	opaque-transparent liquid
Active material:	0,75 - 1,0 %
Effective light spectrum:	up to 475 nm
PH value:	ca. 8,0
Primary particle size:	<8 nm
Crystal structure TiO_2:	anatase
Agglomeration index:	2-4
Relative density:	1,095 g/ml
Consumption:	see appl. data sheet

Drying:

30 minutes / 7 days	at 20°C
15 minutes / 120 minutes	at 75°C

Drying time depends on temperature and humidity during process of application. Feed of heat accelerates the drying process. In case of industrial partial application a high temperature drying is possible.

Status of registration:

Product and/or ingredients are listed in:
CAS, EINECS, TSCA, AICS, CEPA, MITI

Transport:

No dangerous liquid for air-, sea- and rail transports.

Storage:

Twelve months in closed original container.
Store in the dark. Storage temperature: 5 to 45 C°

Package size:

5 litre, 25 litre in plastic container
100 litre, 200 litre in storage-jar

References:

Follow general danger warnings / safety data sheet during handling chemicals. Never mix chemical products.

Product Data Sheet

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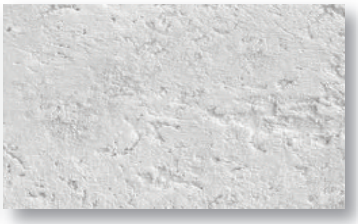
CCM®titan-products are photocatalytic. Exposed to light TitanProtect® produces oxygen radicals on the surface. The activated oxygen decomposes organic molecules and dirt particles that get in touch with the surface. This way odorous substances, air pollutants, viruses, spores and bacteria will be destroyed.

Ti 2207



Description:

Ti 2207 is a product of the chemical nanotechnology. Its function is based on the principle of photocatalysis. The application causes a super hydrophilic surface. Dirt particles will be decomposed by the application and washed away by the rain. Due to a very good bonding capacity the product is perfectly applicable on open pored surfaces.

Application area:

- **mineral plaster**
- **painted open pored facade**
- **painted open pored concrete members**

Properties:

- self-cleaning
- super-hydrophilic
- algae- und moss-prevention
- air cleaning
- odour neutralisation

Primer:

When application on an organic surface a primer (TP2221) is recommended for protection against odation by the photocatalyst.

Form of application:

HVLP-spray-technique is recommended.
Rolling, painting, dipping, spraying.

Please find detailed information to the HVLP-spraying-technique or industrial forms of application in the application data sheets.

Technical Data:

Ingredients:	TiO_2 , water
Appearance:	transparent- yellowish liquid
Active material:	ca. 0,9 %
Effective light spectrum:	up to 475 nm
PH value:	ca. 8,0
Primary particle size:	<8 nm
Crystal structure TiO_2:	anatase
Agglomeration index:	2-4
Relative density:	1,008 g/ml
Consumption:	see appl. data-sheet

Drying:

30 minutes / 7 days	at 20°C
15 minutes / 120 minutes	at 75°C
5 minutes / 30 minutes	at 150°C

Drying time depends on temperature and humidity during application

Defensilbility of the coating:

At least 10 years when application according to instructions

Status of registration:

Product and/or ingredients are listed in:
CAS, EINECS, TSCA, AICS, CEPA, MITI

Storage:

Twelve months in closed original container. Store in the dark. Storage temperature: 5 to 45 C°

Package sizes:

5 litre, 25 litre in plastic container
100 litre, 200 litre in storage-jar

References:

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Product data sheet

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CCM®titan-products are photocatalytic. Exposed to light TitanProtect® produces oxygen radicals on the surface. The activated oxygen decomposes organic molecules and dirt particles that get in touch with the surface. This way odorous substances, air pollutants, viruses, spores and bacteria will be destroyed.

Ti 2209

Description:

Ti 2209 is a product of the chemical nanotechnology. Its function is based on the principle of photocatalysis. The application causes a neutral odour and healthy compatment air. Molecules, viruses and bacteria causing smell will be decomposed actively by the application. This product is used more often both in public, private and commercial areas.

Application areas:

The application is possible on all even and/or structured surfaces.

This product is optimized for:

- **Application of interior rooms**
- **Application of internal space of transportation means**
- **Application of air filters and partial application of filter systems and air conditions**

Properties:

- air cleaning
- odour neutralisation
- self cleaning on even surfaces

Primer:

No primer needed.

Form of application:

HVLP-spray-technique is recommended.
Rolling, painting, spraying is possible.
Please find further deatiled onformation to this form of application in the application data sheet.

Technical Data:

Ingredients:	TiO_2 , water
Appearance:	white-transparent liquid
Active material:	0,8 - 1,0 %
Effective light spectrum:	up to 475 nm
PH value:	ca. 8,0
Primary particle size:	<8 nm
Crystal structure TiO_2:	anatase
Agglomeration index:	2-4
Relative density:	1,075 g/ml
Consumption:	see appl. data sheet

Drying:

30 minutes / 7 days at 20°C

Drying time depends on temperature and humidity during the application.
Feed of heat accelerates the drying process. In case of industrial application of filter parts a high temperature drying is possible.

Status of registration:

Product and/or ingredients are listed in:
CAS, EINECS, TSCA, AICS, CEPA, MITI

Transport:

No dangerous liquid for air-, sea- and trail transports.

Storage:

Six months in closed original container. Store in the dark. Storage temperature: 5 to 45 C°

Package size:

5 litre, 25 litre in plastic container
100 litre, 200 litre in storage-jar

References:

Follow general danger warnings / safety data sheet during handling chemicals. Never mix chemical products.

Product data sheet

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CCM®titan-products are photocatalytic. Exposed to light TitanProtect® produces oxygen radicals on the surface. The activated oxygen decomposes organic molecules and dirt particles that get in touch with the surface. This way odorous substances, air pollutants, viruses, spores and bacteria will be destroyed.

Ti 2219



Description:

Ti 2219 is a product of the chemical nanotechnology. Its function is based on the principle of photocatalysis. The application causes a neutral odour and healthy compartment air. Molecules, viruses and bacteria causing smell will be decomposed actively by the application. This product is used more often both in public, private and commercial areas.

Application areas:

The application is possible on all even and/or structured surfaces.

This product is optimized for:

- **Application of interior rooms**
- **Application of internal space of transportation means**
- **Application of air filters and partial application of filter systems and air conditions**

Properties:

- air cleaning
- odour neutralisation
- self cleaning on even surfaces

Primer:

No primer needed.

Form of application:

HVLP-spray-technique is recommended.
Rolling, painting, spraying is possible.
Please find further deatiled onformation to this form of application in the application data sheet.

Technical Data:

Ingredients:	TiO_2 , water
Appearance:	yellowish-transparent liquid
Active material:	2,3 - 2,5 %
Effective light spectrum:	up to 475 nm
PH value:	ca. 8,0
Primary particle size:	<8 nm
Crystal structure TiO_2:	anatase
Agglomeration index:	2-4
Relative density:	1,023 g/ml
Consumption:	see appl. data sheet

Drying:

30 minutes up to 24 hours at 20°C

Drying time depends on temperature and humidity during the application.
Feed of heat accelerates the drying process. In case of industrial application of filter parts a high temperature drying is possible.

Status of registration:

Product and/or ingredients are listed in:
CAS, EINECS, TSCA, AICS, CEPA, MITI

Transport:

No dangerous liquid for air-, sea- and trail transports.

Storage:

Six months in closed original container. Store in the dark. Storage temperature: 5 to 45 C°

Package size:

5 litre, 25 litre in plastic container
100 litre, 200 litre in storage-jar

References:

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Product Data Sheet

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CCM®titan-products are photocatalytic. Exposed to light TitanProtect® produces oxygen radicals on the surface. The activated oxygen decomposes organic molecules and dirt particles that get in touch with the surface. This way odorous substances, air pollutants, viruses, spores and bacteria will be destroyed.

Ti 2210



Description:

Ti 2210 is a product of the chemical nanotechnology. Its function is based on the principle of photocatalysis. The application causes a super-hydrophilic surface. Dirt particles will be decomposed by titanium dioxide and washed away by the rain. Due to a strong reduction of undesirable reflections on the glass surface the efficiency of the solar module will be improved.

Application areas:

Anti-reflex-application for solar modules

The application is possible on all even and / or structured glass surfaces.

This product is applicable for:

- **glass coverings of all popular solar modules**
- **low-iron glas**

Properties:

- self cleaning
- super-hydrophilic
- improvement of efficiency
- improvement of scratching resistance

Form of application:

HVLP-spray-technique is recommended.
In case of industrial application dipping is possible.

Please find detailed information the HVLP-technique in the application data sheet.

Technical Data:

Ingredients:	TiO_2 , SiO_2 , water, alcohol
Appearance:	semi transparent liquid
Active material:	ca. 1,2 %
Effective light spectrum:	up to 475 nm
PH value:	5,0 - 6,0
Primary particle size:	8 - 25 nm
Crystal structure TiO_2:	anatase
Agglomeration index:	2-4
Relative density:	7 H
Consumption:	ca. 25 - 40 ml /m^2

Drying:

15 minutes / 72 hours at 20°C

In case of industrial application heating the surface up to 75° before application is recommended. Hardening is supposed to be in an oven at 200°C in 15 minutes.

Defensibility of the coating:

At least15 years when application and utilisation according to instructions.

Status of registration:

Product and/or ingredients are listed in:
CAS, EINECS, TSCA, AICS, CEPA, MITI

Storage:

Twelve months in colsed original container. Store in the dark. Storage temperature: 5 to 45 C°

Package size:

5 litre, 25 litre in plastic container
100 litre, 200 litre in storage-jar

References:

Follow general danger warnings / safety data sheet during handling chemicals. Never mix chemical products.

Product Data Sheet

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CCM®titan-products are photocatalytic. Exposed to light TitanProtect® produces oxygen radicals on the surface. The activated oxygen decomposes organic molecules and dirt particles that get in touch with the surface. This way odorous substances, air pollutants, viruses, spores and bacteria will be destroyed.

Ti 2214



Description:

Ti 2214 is a product of the chemical nanotechnology. Its function is based on the principle of photocatalysis. The application causes a super-hydrophilic surface. Dirt particles will be decomposed by the application and washed away by the rain. Due to a very good bonding capacity the product is perfectly applicable on open pored surfaces.

Application area:

- **uncoated concrete surfaces**
- **finished parts of concrete**
- **open pored and rough stone surfaces**

Properties:

- self cleaning
- super-hydrophily
- prevention of moss and algae
- air cleaning
- odour neutralisation

Primer:

No primer needed.

Form of application:

HVLP-spray-technique is recommended.
Rolling, dipping and spraying is possible.

Please find detailed information to HVLP-technique or the industrial application in the application data sheets.

Technical Data:

Ingredients:	TiO_2 , water
Appearance:	whitish-transparent liquid
Active material:	ca. 0,9 %
Effective light spectrum:	up to 475 nm
PH value:	ca. 8,0
Primary particle size:	<8 nm
Crystal structure TiO_2:	anatase
Agglomeration index:	2-4
Relative density:	1,008 g/ml
Consumption:	see appl. data sheet

Drying:

30 minutes / 7 days	at 20°C
15 minutes / 120 minutes	at 75°C
5 minutes / 30 minutes	at 150°C

High temperature drying possible up to 100°C possible. Drying time depends on temperature and humidity during process of application.

Defensibility of the coating:

At least 10 years when application according to instructions.

Status of registration:

Product and/or ingredients are listed in:
CAS, EINECS, TSCA, AICS, CEPA, MITI

Storage:

Twelve months in closed original container. Store in the dark. Storage temperature: 5 to 45 C°

Package size:

5 litre, 25 litre in plastic container
100 litre, 200 litre in storage-jar

References:

Follow general danger warnings / safety data sheet during handling chemicals. Never mix chemical products.

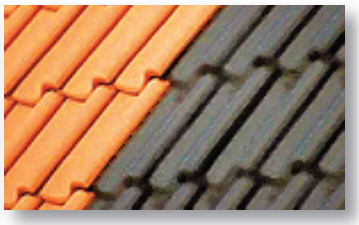
Product Data Sheet

Nanotechnology is one of the most promising technologies of the world. It is less a technology - it is more an umbrella term for a multitude of applications and porducts which consist of tiny particles and thereby get very special and even complete new properties.

CCM®titan uses the property of photocatalytic titanium dioxide. This technology is not new but due to advanced manufacturing techniques, smaller dimensions of particles and doping with noble metals new applications were found, which were considered as utopia recently.

CCM®titan-products are photocatalytic. Exposed to light TitanProtect® produces oxygen radicals on the surface. The activated oxygen decomposes organic molecules and dirt particles that get in touch with the surface. This way odorous substances, air pollutants, viruses, spores and bacteria will be destroyed.

Ti 2224



Description:

Ti 2204 is a product of the chemical nanotechnology. Its function is based on the principle of photocatalysis. The application causes a super-hydrophilic surface. Dirt particles will be corroded by the application and washed away by the rain. Due to its versatility this product is available for industrial and manual application.

Application area:

TA2224 is a UV-reactive industrial application for products in the outdoor area.

This product is optimized for:

- **components of clay**
- **compenents of concrete**
- **unglazed flagging**

Properties:

- self cleaning
- super hydrophily
- prevention of algae and moss
- air cleaning

Primer:

No primer needed.

Form of application:

HVLP-spray-technique is recommended.
Rolling, dipping, spraying.

Please find detailed information to the HVLP-technique and industrial applications in the application data sheet.

Technical Data:

Ingredients:	TiO_2 , water
Appearance:	bluish-whitish-transparent liquid
Active material:	ca. 0,9 %
Effective light spectrum:	up to 400 nm
PH value:	ca. 8,0
Primary particle size:	<8 nm
Crystal structure TiO_2:	anatase
Agglomeration index:	2-4
Relative density:	1,008 g/ml
Consumption:	see appl. data sheet

Drying:

30 minutes / 7 days	at 20°C
15 minutes / 120 minutes	at 75°C
5 minutes / 30 minutes	at 150°C

High temperature drying up to 600°C possible.
Drying time depends on temperature and humidity.

Defensibility of the coating:

At least 10 years when application according to instructions

Status of registration:

Product and/or ingredients are listed in:
CAS, EINECS, TSCA, AICS, CEPA, MITI

Storage:

Twelve months in closed original container. Store in the dark. Storage temperature: 5 to 45 C°

Package size:

5 litre, 25 litre in plastic container
100 litre, 200 litre in storage-jar

References:

Follow general danger warnings / safety data sheet during handling chemicals. Never mix chemical products.

Product data sheet

Nanotechnology is one of the most promising technologies of the world. It is less a technology - it is more an umbrella term for a multitude of applications and products which consist of tiny particles and thereby get very special and even complete new properties.

CCM®titan uses the property of photocatalytic titanium dioxide. This technology is not new but due to advanced manufacturing techniques, smaller dimensions of particles and doping with noble metals new applications were found, which were considered as utopia recently.

CCM®titan-products are photocatalytic. Exposed to light TitanProtect® produces oxygen radicals on the surface. The activated oxygen decomposes organic molecules and dirt particles that get in touch with the surface. This way odorous substances, air pollutants, viruses, spores and bacteria will be destroyed.

Ti 2015

Description:

Ti 2215 is a product of the chemical nanotechnology. The function of the product is based of the photo catalyses. The high-concentrate suspension is water based and because of its small particle size very reactive. The small agglomeration index and the good workability, offer a perfect basic for all industrial applications.

Application area:

Suspension to blend into the matrix or to coat the matrix.

The product is adapted for:

- Production of building materials
- Production of paint and varnish
- Production of cosmetic products
- Coating of components for air and water purification

Features:

- self-cleaning
- Algae and moss privation
- air purification
- UV-protect

Primer (grounding):

In case of application for coatings of organic under grounds it is recommended to use a primer to pro tect the surface from oxidation because of the photo catalyses

Application:

Blending
HVLP-injection molding
to apply with a spool
Dipping

Technical Data:

Ingredients:	TiO_2 , water
Appearance:	whitish-transparent liquid
Active material:	15% (+/- 1,5%)
Effective light spectrum:	up to 375 nm
PH value:	ca. 7,0 -9,0
Primary particle size:	<8 nm
Crystal structure TiO_2:	anatase
Agglomeration index:	20 -30
Relative density:	1,08 - 1,13 g/ml
Consumption:	see appl. data sheet

Status of registration:

Product and/or ingredients are listed in:
CAS, EINECS, TSCA, AICS, CEPA, MITI

Storage:

Twelve months in closed original container. Store in the dark. Storage temperature: 5 to 45 C°

Package size:

5 litre, 25 litre in plastic container
100 litre, 200 litre in storage-jar

Transport:

No dangerous liquid for air-, sea- and trail transports.

References:

Follow general danger warnings / safety data sheet during handling chemicals. Never mix chemical products.

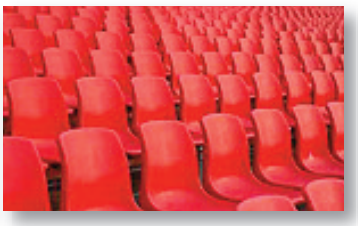
Product data sheet

Nanotechnology is one of the most promising technologies of the world. It is less a technology - it is more an umbrella term for a multitude of applications and products which consist of tiny particles and thereby get very special and even complete new properties.

CCM®titan uses the property of photocatalytic titanium dioxide. This technology is not new but due to advanced manufacturing techniques, smaller dimensions of particles and doping with noble metals new applications were found, which were considered as utopia recently.

CCM®titan-products are photocatalytic. Exposed to light TitanProtect® produces oxygen radicals on the surface. The activated oxygen decomposes organic molecules and dirt particles that get in touch with the surface. This way odorous substances, air pollutants, viruses, spores and bacteria will be destroyed.

Ti 2220



Description:

Ti 2220 is a product of the chemical nanotechnology. Due to a modification of the molecular strucure the photocatalytic reactivity of TiO_2 is prevented. On the basis of this new property the product is exceptionally well-suited as a primer before application with active titanium dioxide or as an UV-protect-coat. Ti 2220 has an excellent bonding capacity on all surfaces.

Application Area:

► **Primer (Grounding) for all even and not absorbing surfaces**

Properties:

- Primer for protecting organic substances from oxidative damages
- Grounding for a better bonding capacity with an active Ti-application
- UV protection

Form of application:

HVLP-spray-technique is recommended.
Rolling, painting, dipping.

In combination with an active material of the Ti-series an application "wet in wet" is possible.

Please find further detailed information according HVLP-technique or industrial application in the application data sheets.

Technical Data:

Ingredients:	TiO_2 , water
Appearance:	yellowish-transparent liquid
amount of TiO_2:	ca. 0,65 - 0,9 %
PH value:	ca. 7
Primary particle size:	<3 nm
Agglomeration index:	<10
Relative density:	1,0065 g/ml

Drying:

30 minutes / 72 hours	at 20°C
15 minutes / 120 minutes	at 75°C

Drying time depends on temperature and humidity during process of application.

Defensibility of the coating:

At least 10 years when application according to instructions.

Status of registration:

Product and/or ingredients are listed in:
CAS, EINECS, TSCA, AICS, CEPA, MITI

Transport:

No hazardous material for air-, rail- or ship-transport.

Storage:

Twelve months in closed original container. Store in the darkness. Storage temperature: 5 to 45°C

Package size:

5 litre, 25 litre in plastic container
100 litre, 200 litre in storage-jar

References:

Follow general danger warnings / safety data sheet during handling chemicals. Never mix chemical products.

Product data sheet

Nanotechnology is one of the most promising technologies of the world. It is less a technology - it is more an umbrella term for a multitude of applications and products which consist of tiny particles and thereby get very special and even complete new properties.

CCM®titan uses the property of photocatalytic titanium dioxide. This technology is not new but due to advanced manufacturing techniques, smaller dimensions of particles and doping with noble metals new applications were found, which were considered as utopia recently.

CCM®titan-products are photocatalytic. Exposed to light TitanProtect® produces oxygen radicals on the surface. The activated oxygen decomposes organic molecules and dirt particles that get in touch with the surface. This way odorous substances, air pollutants, viruses, spores and bacteria will be destroyed.

Ti 2221



Description:

Ti 2221 is a product of the chemical nanotechnology. Due to a modification of the molecular strucure the photocatalytic reactivity of TiO_2 is prevented. On the basis of this new property the product is exceptionally well-suited as a primer before application with active titanium dioxide or as a UV-protect-coat. Ti 2221 has an excellent bonding capacity on all surfaces.

Application area:

► **Primer (Groundig) for all raw and absorbing surfaces**

Properties:

- Primer for protecting organic substances from oxidative damages
- Grounding for a better bonding capacity with an active Ti-application
- Primer for reducing the application quantity of the active Ti-product in case of very absorbing surface
- UV protection

Form of application:

HVLP-spray-technique is recommended.
Rolling, painting, dipping.

In combination with an active material of the Ti-series an application "wet in wet" is possible.

Please find further detailed information according HVLP-technique or industrial application in the application data sheets.

Technical data:

Ingredients:	TiO_2 , water
Appearance:	yellowish-transparent liquid
amount of TiO_2:	ca. 0,65 - 0,9 %
PH value:	ca. 7
Primary particle size:	<3 nm
Agglomeration index:	<10
Relative density:	1,0060 g/ml

Drying:

30 minutes / 72 hours	at 20°C
15 minutes / 120 minutes	at 75°C

Drying time depends on temperature and humidity during process of application.

Defensibility of the coating:

At least 10 years when application occurs according to instructions.

Status of registration:

Product and/or ingredients are listed in:
CAS, EINECS, TSCA, AICS, CEPA, MITI

Transport:

No hazardous material for air-, ship- or rail-transport.

Storage:

Twelve months in closed original container. Store in the darkness. Storage temperature : 5 to 45°C

Package size:

5 litre, 25 litre in plastic container
100 litre, 200 litre in storage-jar

References:

Follow general danger warnings / safety data sheet during handling chemicals. Never mix chemical products.

INTELLIGENT SURFACE PROTECTION

NANO-coated surfaces obtain completely new properties. Depending on the used product the surfaces become hydrophobic (water repellent) or hydrophilic (water loving). Liquids, but also dirt or lime can no longer stick. The surfaces are easily cleaned or even clean themselves.

All CCM-products have one aim: they create an intelligent, dirt and water repellent, superfine, invisible and depending on the material even breathable structure. Minimum NANO-particles connect with the treated surface and create a lasting non-stick-effect that can only be destroyed mechanically.

Nano-Cleaner Basic

- ☑ optimal preparation for the NANO-treatment
- ☑ protects the environment
- ☑ less cleaning effort and much better cleanability
- ☑ hygienic cleanness
- ☑ easy processing
- ☑ combination product for a variety of nano-sealers
- ☑ long-term protection

NR1301 Nano-Cleaner Basic is a product that causes an exceptionally good cleaning property. This cleaner is suitable for the preparation of nano-treatment, as well as for cleaning surfaces already treated with nanofluids.

Application area:
- metal
- glass
- ceramic
- synthetics
- lacquered surfaces

living area:
- kitchens
- sanitary area
- plastic furniture

Outdoor-area:
- garden furniture of synthetic material
- Camping/Caravan
- vehicle / motor cycle

The product is equally suitable for indoor and outdoor applications.

Available package sizes:

bottle with atomiser: 100 ml, 250 ml
PE-bottle/sprayer: 500 ml, 1.000 ml
Canister: 5 L., 20 L. Barrel: 200 L.

Technical Data:

Article ID:	**NR1301**
Dilution:	use only undiluted
Consumption:	ca.100ml per 10 - 15 m^2
Drying:	
Hardening:	
Temperature:	
Storage:	12 months in original package at + 5°C to + 25°C

Safety instructions:

General measures of precaution handling chemicals. Gloves are recommended. The product is highly flammable and can cause acid burns. Observe details of the safety data sheet. Do not mix the product! Mixing with other liquids can result in severe reactions.

NANO-coated surfaces obtain completely new properties. Depending on the used product the surfaces become hydrophobic (water repellent) or hydrophilic (water loving). Liquids, but also dirt or lime can no longer stick. The surfaces are easily cleaned or even clean themselves.

All CCM-products have one aim: they create an intelligent, dirt and water repellent, superfine, invisible and depending on the material even breathable structure. Minimum NANO-particles connect with the treated surface and create a lasting non-stick-effect that can only be destroyed mechanically.

Nano-Cleaner Abrasive

- ☑ Optimal preparation for NANO-coating
- ☑ Combination product for diverse NANO-coatings
- ☑ Less cleaning effort and much better cleanability
- ☑ Hygienic cleanness
- ☑ Easy processing

NR1304 Nano-Cleaner Abrasive is a product, that has exceptionally good cleaning properties. This cleaner can be used for precleaning before coating with NADICO NR1301 or TitanProtect® TA2201.

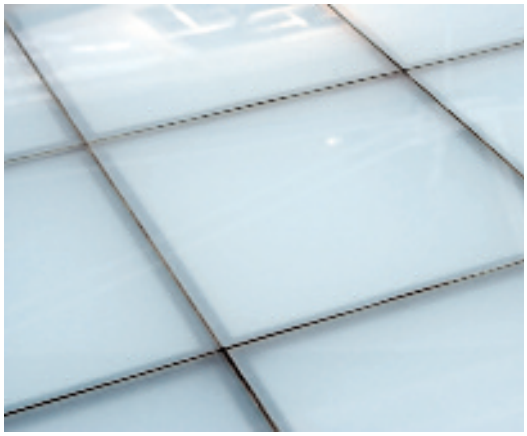
Application areas:

- Glass
- Tiles
- Sanitary wave

Do not use on surfaces that can easily be scratched as there are acrylic or plastic, acid-sensitive materials like marcle or stone, , satined or blasted glass. Avoid contact to raw and dark plastic parts, as the cleaner is hard to remove from it. Tape areas if necessary.

This product is suitable for indoor and outdoor use.

Processing:
Shake NR1304 well before use. Put a small quantity on the surface to be cleaned or on a wet cleaning cloth and clean the surface with circular movements. In case the cleaner dries on the surfaces just moisten it with water. Afterwards the cleaner is to remove with pouring water or a wet cloth. Last remains can be removed by a dry cloth. To make sure the surface is clean carry out the test of cleaning efficiency explained on the application data sheet.



Available package sizes:

Bottles:
50ml, 100ml, 250ml
PE-bottles: 500ml, 1.000ml
Canister: 5L., 20L. Barrel: 200 L.

Technical Data:

Article ID: **NR1304**
Dilution: Use only undiluted
Consumption: ca. 100 ml per 4 - 5 m^2
Drying:
Hardening:
Temperature:
Storage: 12 months in original packaging aat + 5°C to + 25°C

Safety instructions:

General measures of precaution handling chemicals. Gloves are recommended. Observe the details of the safety data sheet. Do not mix the product. Mixing with other liquids can result in severe reactions

Processing of CCM®titan-products

Surfaces that shall be coated have to be free of dirt, dust and grease. Residua of silicone have to be removed by an adapted cleaner before application. On all even, polished and shining surfaces the application occures with the established HVLP-technique.

On absorbing, raw and porous surfaces the liquid can also be sprayed, painted or rolled. Applications with dipping-technique are possible as well. In this case pay attention that the recommended application quantities will be kept.

The exact application quantitiy depends on environmental conditions as there are wind, tools, temperature and humidity. In case of exceeding the recommended maximum of coating the application might leave a visible light grey film on the surface.

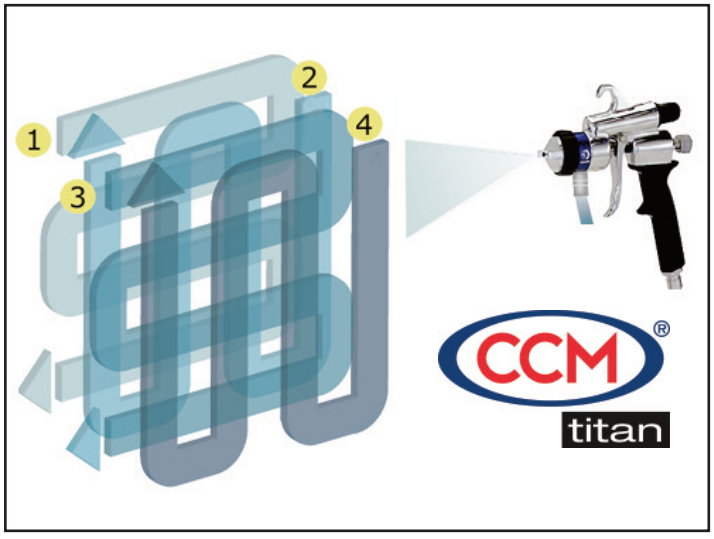
Instruction on Application

Preparation:

Surfaces that shall be coated have to be free of dirt, dust and grease. Residua of silicone have to be removed by an adapted cleaner before application. If possible pre-clean window panes with an abrasive (e.g. NR1304).

Manual application:

On all even, polished and shining surfaces the application should occur with the established HVLP-technique. Basically this manner of application is suited for all kinds of surfaces. On absorbing, raw and porous surfaces CCM®titan also can be sprayed, painted or rolled. Applications with dipping-technique are possible as well. In this case pay attention that the recommended application quantities will be kept.



Spray technique:

Application with HVLP-technique occures in cross-coat in up to four worksteps. The recommended application quantity should be divided on the worksteps.

Utilisation of primer:

Primers are used to improve the adhesive strength of a CCM®titan-coating and defends the surface from damages by the photocatalysis. In case of using primer half of the material can be replaced by it. In that case two coats primer and two coats active material have to be applicated. The primer always has to be applicated first!

Application quantities:

Please find the exact application quantity in the data sheet “application quantities”. It depends on environmental conditions as there are wind, temperature, humidity or the used tool. The data in the column “medium” are intended as a guidance when application occures manually. The minimum quantity can be reached when conditions during the application are very controlled (e.g. industrial application). In case of exceeding the recommended maximum of coating the application might leave a light grey but visible film on the surface.

Drying:

Please gather the respective drying times from the actual product-data-sheets. As a basic principle the drying process will be shortened by the supply of heat. The coating achieves the final hardness depending on the product after 14 up to max. 60 days.

Industrial application

In case of an industrial application the consumption values of the column “minimum” are valid. Due to its minimal loss of overspray an application with the HVLP-technique is recommended here too.

Basically the drying process will be shortened significantly by the supply of heat as well with industrial application. With most products, a high-drying temperature up to 600°C is possible.

Processing of CCM®titan-products

Surfaces that shall be coated have to be free of dirt, dust and grease. Residua of silicone have to be removed by an adapted cleaner before application. On all even, polished and shining surfaces the application occures with the established HVLP-technique.

On absorbing, raw and porous surfaces the liquid can also be sprayed, painted or rolled. Applications with dipping-technique are possible as well. In this case pay attention that the recommended application quantities will be kept.

The exact application quantitiy depends on environmental conditions as there are wind, tools, temperature and humidity. In case of exceeding the recommended maximum of coating the application might leave a visible light grey film on the surface.

Applied quantity

surface	minimum		medium		maximum	
glass	30 ml / m²	33 m²	40 ml / m²	25 m²	50 ml / m²	20 m²
glazed flagging	25 ml / m²	40 m²	40 ml / m²	25 m²	60 ml / m²	17 m²
unglazed flagging	36 ml / m²	28 m²	60 ml / m²	17 m²	96 ml / m²	10 m²
synthetic even	25 ml / m²	40 m²	40 ml / m²	25 m²	64 ml / m²	16 m²
synthetic raw	30 ml / m²	33 m²	50 ml / m²	20 m²	80 ml / m²	13 m²
metal, aluminium	30 ml / m²	33 m²	40 ml / m²	25 m²	50 ml / m²	20 m²
marble polished	36 ml / m²	28 m²	60 ml / m²	17 m²	96 ml / m²	10 m²
marble nature, raw	45 ml / m²	22 m²	75 ml / m²	13 m²	120 ml / m²	8 m²
granite polished	36 ml / m²	28 m²	60 ml / m²	17 m²	96 ml / m²	10 m²
granite nature, raw	42 ml / m²	24 m²	70 ml / m²	14 m²	110 ml / m²	9 m²
sandstone, absorbing	54 ml / m²	19 m²	90 ml / m²	11 m²	144 ml / m²	7 m²
lime stone, absorbing	60 ml / m²	17 m²	100 ml / m²	10 m²	160 ml / m²	6 m²
textiles, fine	36 ml / m²	28 m²	60 ml / m²	17 m²	96 ml / m²	10 m²
textiles, rough	45 ml / m²	22 m²	75 ml / m²	13 m²	120 ml / m²	8 m²
mineral plaster	42 ml / m²	24 m²	70 ml / m²	14 m²	112 ml / m²	9 m²
house paint	42 ml / m²	24 m²	70 ml / m²	14 m²	112 ml / m²	9 m²
concrete uncoated, fine	30 ml / m²	33 m²	50 ml / m²	20 m²	80 ml / m²	13 m²
concrete uncoated, rough	36 ml / m²	28 m²	60 ml / m²	17 m²	96 ml / m²	10 m²
brick, clinker unglazed	36 ml / m²	28 m²	60 ml / m²	17 m²	96 ml / m²	10 m²
brick glazed	25 ml / m²	40 m²	40 ml / m²	25 m²	64 ml / m²	16 m²
base coat / primer	**minimum**		**medium**		**maximum**	
not absorbing surfaces	12 ml / m²	83 m²	20 ml / m²	50 m²	32 ml / m²	31 m²
absorbing surfaces	18 ml / m²	56 m²	30 ml / m²	33 m²	48 ml / m²	21 m²
odour neutralisation and air cleaning	**minimum**		**medium**		**maximum**	
even surfaces	9 ml / m²	111 m²	15 ml / m²	67 m²	24 ml / m²	42 m²
raw surfaces	18 ml / m²	56 m²	30 ml / m²	33 m²	48 ml / m²	21 m²
antibacterial application	**minimum**		**medium**		**maximum**	
even surfaces	36 ml / m²	28 m²	60 ml / m²	17 m²	96 ml / m²	10 m²
raw surfaces	54 ml / m²	19 m²	90 ml / m²	11 m²	144 ml / m²	7 m²

Total area to be coated with one litre of liquid:

HVLP-spray-technique stands for High Volume Low Pressure. The sprayed liquid is transported with low pressure (max. 0,36 bar) but high air volume (max. 2.400 l/min).

Contrary to the high-pressure-technique this method allows a high material-transfer rate between spray valve and surface. Titanium dioxide applications usually are aqueous solutions. That is why the usage of very precise needle - spray valve combinations is just as important for a precise application as the correct spray-technique.

HVLP - spray unit

Description:

Based on the established WAGNER™-technology we compiled a set of solid machines. All components meet the highest industrial requirements of reliability and suitability.

This set enables the use of the spraygun with 1 liter-cup as well as the haulage of the necessary fluid out of an xl-tank. This way a fatigue-proof way of working is also guaranteed when bigger surfaces shall be coated. The high-power turbine has two power levels and a control lamp that signalizes if the filter has to be cleaned.

All relevant adjustments occur directly at the spraygun. The change between cup and material hose happens via practical and robust fast-changing-connectors. The needle-injector-combination used in our set is matched with the application of CCM®titan-products and not available on the market.

The external xl-tank contains 11,3 litres, is very robust and due to a integrated carrying handle easy to manage. In case of using two tanks with fast-changing-connectors with integrated valve quick changes of material (e.g. primer and top-coat) are easily to manage.

The necessitated pressure for transporting the material from tank to spraygun is provided by an additional compressor with a continuous regulation of compression. The set contains all components and hoses (incl. one xl-tank) that are needed for the use of the unit.

Technichal information:

Turbine:

connection:	230 V / 50Hz
max. air flow rate:	2.400 l /min
max. operating pressure:	0,36 bar
weight:	12,5 kg
length of air hose:	6 m
length of material hose:	9 m

Compressor:

connection:	230 V / 50Hz
engine performance:	125 W
pressure:	0,5 to 3,5 bar
component part:	water separator
weight:	6,5 kg

XL-tank:

capacity:	11,3 Liter
material:	stainless steel

Scope of delivery:

- HVLP turbine
- spraygun with spec. needle/injector set
- 1 liter cup
- external conveying compressor
- XL-tank
- air hose
- material hose
- all adapters