TEKNOS

Paint with Pride

Tanks & Pipelines

COATING SOLUTIONS

Rev.1

Tanks and Pipelines - Coating Systems, Outside

1. External Areas & Pipelines

a)	INERTA MASTIC (MIOX) High Solid Epoxy TEKNODUR 0050 Semi-gloss or TEKNODUR 0090 Gloss Polyurethane Top Coat
b)	TEKNOPLAST PRIMER 7 Epoxy Primer TEKNODUR 0050 Semi-gloss or TEKNODUR 0090 Gloss Polyurethane Top Coat
c)	TEKNOPLAST PRIMER 3 Epoxy Primer TEKNODUR 0050 Semi-gloss or TEKNODUR 0090 Gloss Polyurethane Top Coat
d)	TEKNODUR COMBI 3560 Primer-Finish Polyurethane
e)	TEKNOZINC 80 SE Zinc Rich Epoxy Paint or TEKNOZINC 90SE Zinc Rich Epoxy Paint TEKNODUR COMBI 3430 Primer-Finish Polyurethane
	Systems a-d corrosion resistance can be upgraded by using TEKNOZINC 80 SE or 90 SE Zinc Rich Epoxy Primer

Tanks and Pipelines – Coating Systems, Outside

1. External Areas & Pipelines

	Features	Benefits
a)	High solids, low VOC content Surface tolerant epoxy Suitable for application down to -5°C UV resistant polyurethane topcoat	Control of solvent emissions Savings in pre-treatment costs Year around workability Extended maintenance period
b)	High solids, low VOC content Suitable for application down to -5°C UV resistant polyurethane topcoat	Control of solvent emissions Year around workability Extended maintenance period
c)	Suitable for application down to -5°C UV resistant polyurethane topcoat	Year around workability Extended maintenance period
d)	Very good gloss and colour retention Anticorrosive pigmented Very fast drying Low VOC content	Control of maintenance Combined primer-finish Very fast throughput Control of solvent emissions
e)	Very good gloss and colour retention Low VOC content Fast drying Anticorrosive pigmented	Control of maintenance Control of emissions Very fast throughput Combined primer/finish

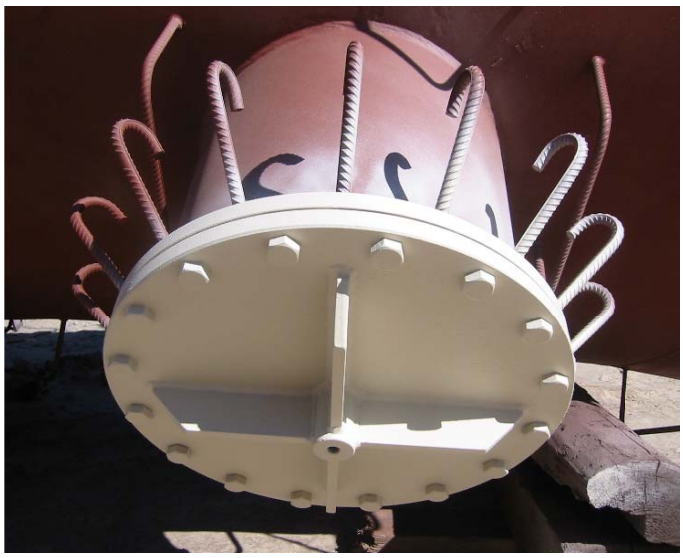
Tanks and Pipelines - Coating Systems, Outside

2. Fire Water Pipelines (where excellent UV-protection is required)

a)	INERTA MASTIC (MIOX) High Solid Epoxy TEKNODUR 0050 Semi-gloss or TEKNODUR 0090 Gloss Polyurethane Top Coat TEKNODUR 0290 Clear Polyurethane Varnish
b)	TEKNOPLAST PRIMER 7 Epoxy Primer TEKNODUR 0050 Semi- gloss or TEKNODUR 0090 Gloss Polyurethane Top Coat TEKNODUR 0290 Clear Polyurethane Varnish

3. Insulated Pipelines

a)	**Temperature below +140ºC** INERTA MASTIC (MIOX) High Solid Epoxy
b)	**Temperature above +140ºC** TEKNOZINC SS Zinc Silicate



Tanks and Pipelines - Coating Systems, Outside

	Features	Benefits
2a)	High solids, low VOC content Surface tolerant epoxy Suitable for application down to -5°C UV resistant polyurethane topcoat Clear varnish gives superior UV protection	Control of solvent emissions Savings in pre-treatment costs Year around workability Extended maintenance period Long term maintenance period
2b)	High solids, low VOC content Suitable for application down to -5°C UV resistant polyurethane topcoat Clear varnish gives superior UV protection	Control of solvent emissions Year around workability Extended maintenance period Long term maintenance period
3a)	High solids, low VOC content Suitable for application down to -5°C Surface tolerant epoxy	Control of solvent emissions Year around workability Savings in pre-treatment costs
3b)	Excellent corrosion protection Single coat thin film scheme	Long term maintenance period Control of application costs

Tanks and Pipelines - Coating Systems, Inside

1. Product and Storage Tanks

a)	INERTA PRIMER 3 Epoxy Primer INERTA 51 Epoxy Primer / Intermediate INERTA 50 Epoxy Top Coat
b)	INERTA 250 Epoxy Coating
c)	INERTA 260 Antistatic Epoxy Coating

2. Diesel Oil & Heavy Oil Tanks

a)	INERTA PRIMER 3 Epoxy Primer INERTA 51 Epoxy Primer / Intermediate INERTA 50 Epoxy Top Coat
b)	EPITAR Coal Tar Epoxy
c)	TEKNOTAR 200 Purified Urethane Tar

3. Solvent Tanks

a)	TEKNOZINC SS Zinc Silicate Paint

4. Potable Water Tanks

a)	INERTA 205 Epoxy Coating

5. Gas Pipes

	TEKNOPOX 3296-05 Epoxy Coating

Tanks and Pipelines - Coating Systems, Inside

	Features	Benefits
1a)	Epoxy technology Tough, glossy finish Long term experience	Resistant wide range of chemicals Easy cleaning Reliable system
1b)	Very low solvent content Tough, glossy finish Epoxy phenolic technology	Control of VOC emissions Easy cleaning Resistant to a wide range of chemicals
1c)	High solid content Antistatic properties Epoxy phenolic technology	Control of VOC emissions Minimise risk of sparking Resistant to a wide range of chemicals
2a)	Epoxy technology Tough, glossy finish Long term experience	Resistant wide range of chemicals Easy cleaning Reliable system
2b)	Economical tank coating system Long term experience	Cost savings in production Proven, practical experience
2c)	Economical tank coating system Suitable for application down to -10°C	Cost savings in production Year around workability
3a)	Single coat scheme	Control of application costs
4a)	Very low solvent content Tough, glossy finish Applied by standard airless spray	Control of VOC emissions Easy cleaning Cost savings in production
5)	High solids, low VOC content Compliant with ISO 15741:12/2001, API 5L2 (RP5L2):2002 and DIN EN 10301:01/2004	Control of solvent emissions Improves gas flow in the pipe

Examples of Recommended Systems for Outdoor Exposure According ISO 12944

INERTA MASTIC (MIOX) Epoxy Coating TEKNODUR 0050 Semi-gloss or 0090 Gloss Polyurethane Top Coat	1 x 120 µm 1 x 40 µm TDFT 160 µm	C4-M
TEKNOPLAST PRIMER 7 Epoxy Primer TEKNODUR 0050 Semi-gloss or 0090 Gloss Polyurethane Top Coat	2 x 80 µm 1 x 40 µm TDFT 200 µm	C5-M/L
TEKNOPLAST PRIMER 3 Epoxy Primer TEKNODUR 0050 Semi-gloss or 0090 Gloss Polyurethane Top Coat	3 x 80 µm 1 x 40 µm TDFT 280 µm	C5-I/H
TEKNOZINC 80 SE Zinc Rich Epoxy Primer TEKNODUR COMBI 3430 Polyurethane Paint	1 x 40 µm 1 x 100 µm TDFT 140 µm	C3-M
TEKNODUR COMBI 3560 Polyurethane Paint	1 x 125 µm	C4-M
More info and specifications in Teknos K-System Manual		

Recommended Systems for Inside of Tanks (Immersion)

INERTA PRIMER 3 Epoxy Primer INERTA 51 Epoxy Paint INERTA 50 Epoxy Top Coat	1 x 125 µm 1 x 125 µm 1 x 50 µm TDFT 300 µm
INERTA 250 Epoxy Coating	2 x 250 µm TDFT 500 µm
INERTA 260 Epoxy Coating	2 x 200 µm TDFT 400 µm
TEKNOZINC SS Zinc Silicate Paint	1 x 80 µm
INERTA 205 Epoxy Coating	2 x 125 µm TDFT 250 µm
EPITAR Coal Tar Epoxy	3 x 120 µm TDFT 360 µm
TEKNOTAR 200 Purified Urethane Tar	3 x 100 µm TDFT 300 µm
More info and specifications in Teknos K-System Manual	

Recommended Systems for Inside of Gas Pipes

TEKNOPOX 3296-05 Epoxy Coating	1 x 80 µm

Testing Data, ISO 12944-6

Corrosivity category as defined in ISO 12944-2	Durability Ranges	ISO 6270 (water condensation)	ISO 7253 (neutral salt spray)
C2	Low Medium High	48h 48h 120h	
C3	Low Medium High	48h 120h 240h	120h 240h 480h
C4	Low Medium High	120h 240h 480h	240h 480h 720h
C5-I	Low Medium High	240h 480h 720h	480h 720h 1440h
C5-M	Low Medium High	240h 480h 720h	480h 720h 1440h

Corrosion Environment Classification

Corrosivity Category		**Examples of typical environments in a temperate climate**
	Exterior	Interior
C1		Heated buildings with clean atmosphere e.g. offices, shops, schools etc.
C2	Atmospheres with low level of pollution. Mostly rural areas.	Unheated buildings where condensation may occur e.g. depots
C3	Urban and industrial atmospheres, moderate sulphur dioxide pollution. Coastal areas with low salinity.	Production rooms with high humidity and some air pollution e.g. food processing plants, breweries Aetc.
C4	Industrial areas and coastal areas with moderate salinity	Chemical plants, coastal ship and boatyards
C5-I	Industrial areas with high humidiAty and aggressive atmosphere	Buildings or areas with almost permanent condensation and with high pollution
C5-M	Coastal and offshore areas with high salinity	Buildings or areas with almost permanent condensation and with high pollution

Basic Product Properties

Product name	Solids by volume	Drying time (touch dry)	Overcoat interval, (+23°C) min / max
INERTA MASTIC Epoxy Coating	80%	6 h std hardener 5 h winter hardener	6 h / 7 d when overcoated with TEKNODUR top coat
TEKNOPLAST PRIMER 3 Epoxy Primer	53%	4 h	4 h / 3 d when overcoated with TEKNODUR top coat
TEKNOPLAST PRIMER 7 Epoxy Primer	70%	4 h	4 h / 3 d when overcoated with TEKNODUR top coat
TEKNODUR 0050/0090 Polyurethane Top Coat	50-56%	6 h	12 h / - when overcoated with the product itself
TEKNODUR COMBI 3430 Polyurethane Paint	58-61%	5	h - 4 h / when overcoated with the product itself
TEKNODUR COMBI 3560 Polyurethane Paint	74-93%	50 min – 4 h	1-4 h / 7-28 d when overcoated with the product itself
TEKNOPOX 3296-05 Epoxy Coating	86%	60 min forced drying +60°C	Depends on the line

Basic Product Properties

Product name	Solids by volume	Drying time (touch dry)	Overcoat interval, (+23°C) min / max
INERTA PRIMER 3 Epoxy Primer	50%	5 h	12 h / 1-7 d
INERTA 51 Epoxy Primer / Intermediate	50%	5 h	12 h / 1-7 d
INERTA 50 Epoxy Top Coat	48%	6 h	12 h / 1-7 d
INERTA 250 Epoxy Coating	96%	16 h	6 h / 24 h
INERTA 260 Epoxy Coating	83%	16 h	6 h / 24 h
TEKNOZINC 80 SE Zinc Rich Epoxy Paint	50%	30 min	1 h / 3 mth
TEKNOZINC 90 SE Zinc Rich Epoxy Paint	53%	30 min	1 h / 3 mth
TEKNOZINC SS Zinc Silicate Paint	52%	30 min	1 d when RH over 80% or 2 weeks when RH 50%

Preparation Grades

Standard preparation grade According to ISO8501-1		Feature of prepared surface
Sa1		Poorly adhering mill scale, rust and paint coatings and foreign matter are removed
Sa2		Most of the mill scale, rust, paint coatings and foreign matter are removed. Any residual contamination shall be firmly adhering
Sa2½		Mill scale, rust and paint coatings and foreign matter are removed. Any remaining traces of contamination shall show only as slight stains in the from of spots or stripes
Sa3		Mill scale, rust, paint coatings and foreign matter are removed. The surface shall have a uniform metallic colour
St2		Poorly adhering mill scale, rust and paint coatings and foreign matter are removed
St3		Poorly adhering mill scale, rust and paint coatings and foreign matter are removed. However, the surface shall be treated much more thoroughly than for St2 to give metallic sheen arising from the metallic substrate

Typical Objects

TEKNOPLAST PRIMER 7 Epoxy Primer
TEKNOPLAST 50 Epoxy Top Coat

TEKNOPLAST PRIMER 7 Epoxy Primer
TEKNODUR 0050 Polyurethane Top Coat

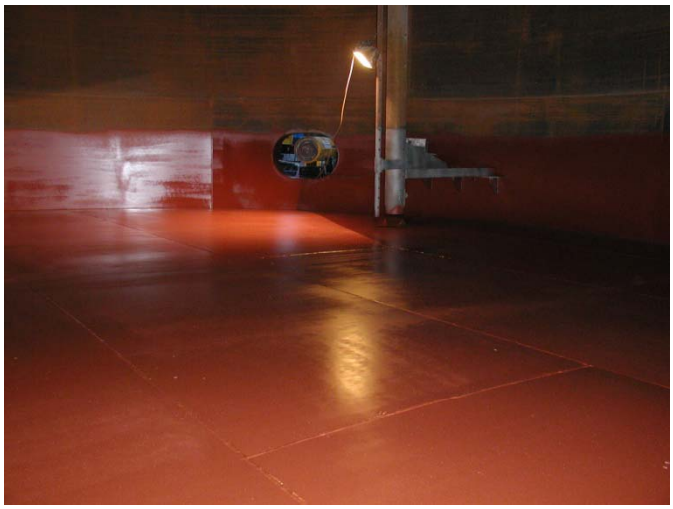
INERTA MASTIC Epoxy Coating
TEKNODUR 50 Polyurethane Top Coat

INERTA MASTIC Epoxy Coating
TEKNODUR 50 Polyurethane Top Coat

Typical Objects

TEKNODUR COMBI 3560
Polyurethane Primer-Finish

TEKNOPLAST PRIMER 7 Epoxy Primer
TEKNODUR 0050 Polyurethane Top Coat



INERTA PRIMER 3 Epoxy Primer
INERTA 51 Epoxy Intermediate
INERTA 50 Epoxy Top Coat

TEKNODUR COMBI 3430
Single Layer Polyurethane Top Coat

Typical Objects

INERTA PRIMER 3 Epoxy Primer
INERTA 51 Epoxy Intermediate
INERTA 50 Epoxy Top Coat

TEKNOZINC SS Zinc Silicate Paint

Steel Construction:
INERTA MASTIC Epoxy Coating
TEKNODUR 0050 Polyurethane Top Coat

INERTA MASTIC Epoxy Coating
TEKNODUR 0050 Polyurethane Top Coat

References

Belarus
Naftan

Denmark
Nybro Dong Energy

Estonia
Alexela Norra As
Alexela Sillamäe As
Baltic Tank As
Kroodi Terminal As
Maardu Terminal As
Neste Eesti As
Oiltanking As
Petkam Terminal As
Vopak E.O.S. As

Finland
Gasum
Neste Oil
Teboil

Germany
Eupec Pipecoatings

Latvia
AGA
LatRosTrans
Neste
Statoil
Ventspils Nafta A/s

Norway
AGA

Poland
Biuro Handlowe RUDA
CGH International S.A.
Marszal
Metalko Sp. z o.o.
OLPP Sp. z o.o.

Russia
Bashneft
Gazprom, Salavatnefteorgsintez
Lukoil, Volgogradnefteorgsintez
Neste
Rosneft, Vankorneft
Rosneft, Samara NPZ
Statoil
Surgutneftegas, Kirishinefteorgsintez
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The Teknos Group

Teknos is the leading supplier of industrial coatings in Scandinavia with a strong position in retail and architectural coatings, too.

Teknos subsidiaries operate in Scandinavia, Germany, the UK, Ireland, Poland, Slovenia and Russia, and the company has a network of well-established sales agents and representatives in around 20 other European countries.

Teknos employs around 1 000 staff. Group turnover is EUR 250 million. Teknos is one of Finland's largest family-owned businesses.

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