



## Product certificate K26785/10

Issued 2018-05-15

Replaces K26785/09

Page 1 of 5

### Thermoplastic piping systems

#### STATEMENT BY KIWA

With this product certificate, issued in accordance with the Kiwa Regulations for Product Certification, Kiwa declares that legitimate confidence exists that the products supplied by

### Nupi Industrie Italiane S.p.A.

as specified in this product certificate and marked with the Kiwa®-mark in the manner as indicated in this product certificate may, on delivery, be relied upon to comply with Kiwa evaluation guideline BRL-K552/03 "Thermoplastic piping systems" dated 2011-02-01 inclusive amendment sheet 2015-03-15.

The products have been tested for compliance with the following media:

- Petrol (100% mineral based fuel)
- Kerosene (100% mineral based fuel)
- Diesel (100% mineral based fuel)
- Bio petrol containing up to 20% Ethanol (= up to E20)
- Bio petrol containing 85% Ethanol (= E85)
- Bio kerosene containing up to 20% Ethanol
- Bio diesel containing up to 20% FAME (= up to B20)

The piping systems are suitable for above ground and underground installation.

Luc Leroy  
Kiwa

*Publication of this certificate is allowed.*

*Advice: consult [www.kiwa.nl](http://www.kiwa.nl) in order to ensure that this certificate is still valid.*

CERTIFICATE

288171015

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**Certification process  
consists of initial and  
regular assessment of:**

- quality system
- product

## Thermoplastic piping systems

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### APPLICATION AND USE

#### General

The piping systems complying with this evaluation guideline are suitable for the transport of liquid oil products as detailed on page 1 of this certificate.

#### Application

The piping systems are suitable in fuel applications under positive or negative pressure with a maximum speed of the liquid of 5 m/s and with a lifetime expectancy of 20 years. The piping system intended for the transport at negative pressure can be used with a negative pressure of a minimum of 0,8 bar (0,2 bar absolute). The piping system intended for the transport at positive pressure can be used with a positive pressure of a maximum working pressure of 8,0 bar.

*NOTE 1: For liquid products other than abovementioned liquids the test liquids and the requirements for the chemical resistance and resistance to permeation shall be adapted.*

*NOTE 2: At the moment of issue of this guideline the following pressures are common in pressure systems: working pressure: 2,5 bar rest pressure: 0,9 bar.*

#### Leak detection

Pressure systems have to be equipped with a leak detection unit on all sections of the pipeline that are under constant pressure according to Kiwa Guideline BRL-K910. All sections of the pipe work under constant pressure must be double wall and have provisions to be installed in combination with a leak detection unit that switches off the pressure pump in case of leakage.

#### Permeation

To prevent unacceptable soil contamination by permeation of the transported product through the lined pipe system of suction and pressure systems for PGS Class 1 and PGS Class 2 fuels, the space between pipe sections in underground applications, where they are connected, is to be sealed by an anti-permeation ring. Anti-permeation rings are not required for PGS Class 3 products. The use of anti-permeation rings is required in standard suction pipes (1", 1¼", 1½", and 2") when used in petrol stations. Single walled pipes in the sizes 3", 4" and 6" are not used as suction pipes for PGS Class 2 products and therefore an anti-permeation ring is not required. Also, since there is no danger of permeation from the gas phase into the environment, the use of an anti-permeation ring is not required for pressure pipes since this is always a double walled piping system.

The anti-permeation ring is a device made of impermeable material that seals off on the barrier layer, thus preventing contact between the transported product and the unprotected/exposed material of the connecting fitting. The anti-permeation ring fits inside the connecting electro-fusion welding fittings.

End-fittings, for pipe in constant contact with PGS Class 1 or PGS Class 2 product where the pipe-section ends into a metal threaded or flanged fitting are to be provided with either a lining made of the tested barrier material, a metal insert or a approved swaged metal coupling. The metal insert seals off on the metal threaded or flanged part of the fitting on one side and to the anti-permeation ring on the other side. These end-fittings are used to connect the pipe to the tank and to the dispenser or pump.

### TECHNICAL SPECIFICATION

#### General

Thermoplastic pipe systems for the transport of liquid petroleum products according to the KIWA Guideline BRL-K552/03: 'Thermoplastic piping systems for the transport of liquid oil products and their vapours'.

#### Application

This Smartflex pipe system of NUPI INDUSTRIE ITALIANE is suitable to transport fuels as listed on page 1 of this certificate. Smartflex can only be used for alternative fuels after a technical approval by Kiwa. Furthermore, the piping system is suitable for:

- Suction systems.
- Pressure systems with a maximum working pressure of 116 psi(g) or 8 bar.
- Underground or aboveground applications.

The piping system is not allowed for LPG applications.

Smartflex pipe is made of polyethylene with a modified nylon barrier layer to reduce the permeation of liquids. Secondary pipe is made of high density polyethylene. This pipe is supplied in coils or as straight pipe in sizes from ø 32, 40, 50, 63, 90, 110, 125 and 160 mm outside diameter.

#### Description of the system

##### General

The NUPI INDUSTRIE ITALIANE "Smartflex" pipe system is a single wall or a double wall piping system that is used for the transport of petroleum products. Product lines are typically a single wall pipe system. Product lines are double walled in the following applications:

- Pressure applications – see note,
- Installations in water catchment areas,
- On customer requirements.

The vapour recovery pipes and fill pipes are normally single wall pipe. For the connections to the tank and to the pumps, only certified fittings must be used.

*Note: Dutch legislation stipulates the use of a leak detection system for pressure applications. This means that in The Netherlands, for pressure applications, only double wall piping systems equipped with a leak detection unit can be used.*

SFLAK-110, SFLAK-110SSV, SAMNP-1104, SAM-1104SS, SAFNP-1104 & SAF-1104SS

For 6" (160mm) single wall pipes:  
SMEN-160, SCE-160, SGE-160, STE-160, STPCL-160, SFLAK-160 & SFLAK-160(SSV)

For 1" (32/40mm) double wall pipes:

## Thermoplastic piping systems

### APPLICATION AND USE

#### Piping systems

For **suction pipes** and **pressure pipes**, are used:

#### Pipes Single wall

Inches	Smartflex code	I.D.	O.D.
1"	19TSMA32	25,2	32
1¼"	19TSMA40	32	40
1½"	19TSMA50	40,6	50
2"	19TSMA63	51,6	63
3"	19TSMA90	74,6	90
4"	19TSMA110	93,6	110
6"	19TSMA160	134,4	160

#### Pipes Double wall

Inches	Smartflex code	O.D. prim. pipe	O.D. sec. pipe
1"	19TSMAD32	32	40
1½"	19TSMAD50	50	63
2"	19TSMAD63	63	75
3"	19TSMAD90	90	125
4"	19TSMAD110	110	125
6"	19TSMAD160	160	225

#### Fittings

For 1" (32 mm) single wall pipes:

SME-32, SGE-32, STELV-32, STPCL-32, SAMNP-321, SAM-321SS, SAF-321SS, SAFNP-321, SAMONP-321, SAFONP-321, SFLAK-32(SSV), SFLAK-32, SRCPG-321 & STPC-32-A

For 1 1/4" (40 mm) single wall pipes:

SME-40, SGE-40, STELV-40, SAMNP-40114, SAM-40114SS, SAF-40114SS, SAFNP-40114, SAMONP-40114, SFLAK-40 (SSV), SFLAK-40, SAFONP-40114, SAPR-40 & STPC-40-A

For 1½" (50 mm) single wall pipes:

SME-50, SCE-50, SGE-50, STE-50, STPCL-50, SAMONP-50112, SAMNP-50112, SAM-50112SS, SAMNP-502, SAFNP-50112, SAF-50112SS, SFLAK-50(SSV), SFLAK-50, SAPR-50, SRCPG-50112, SAFSW-50112, SGB-50, SGBEXT-50 & STPC-50-A

For 2" (63 mm) single wall pipes:

SME-63, SCE-63, SGE-63, STELV-63, STPCL-63, SAMONP-632, SAMNP-632, SAMNP-63112, SAM-63112SS, SAM-632SS, SAFNP-63112, SAFNP-632, SAF-632SS, SFLAK-63(SSV), SFLAK-63, SAF-63112SS, SAPR-63, SALM-63112T70, SALM-63112T45SS, SRCPG-632, SAFSW-632, SGB-63, SGBEXT-63, STPC-63-A & STPC-6350

For 3" (90 mm) single wall pipes:

SMEN-90, SCE-90, SGE-90, STE-90, STPCL-90, SFLAK-90, SFLAK-90SSV, SAMNP-903, SAM-903SS, SFLAK-90(SSV), SFLAK-90 SAFNP-903, SRCPG-903, SAF-903SS & STPC-90-A

For 4" (110mm) single wall pipes:

SMEN-110, SCE-110, SGE-110, STE-110, STPCL-110,

SMEDW-32, SGEDW-32, SGBD-32, SETFC-32, SETFCV-32, STPC-32-A, SRCPG-321, SAMNP-321, SAM-321SS, SAF-321SS, SAFNP-321, SAMONP-321 & SAFONP-321

For 1½" (50/63mm) double wall pipes:

SMEDW-50, SMEDWC-50, SCEDW-50, SGEDW-50, STEDW-50, SETF-50, SETFC-50, SETFV-50, SETFCV-50, SAPR-50, STPC-50-A, SAWFDNP-50112, SAMONP-50112, SAMNP-50112, SAM-50112SS, SCBD-50, SGBD-50, SRCPG-50112, SAFSW-50112, SAFNP-50112 & SAF-50112SS

For 2" (63/75mm) double wall pipes:

SMEDW-63, SMEDWC-63, SCEDW-63, SGEDW-63, STEDW-63, SETF-63, SETFC-63, SETFV-63, SETFCV-63, SAPR-63, STPC-63-A, STPC-6350, SAWFDNP-632, SAMONP-632, SAMNP-632, SAM-632SS, SAFNP-63112, SAMNP-63112, SAM-63112SS, SAFNP-632, SALM-63112T70, SALM-63112T45SS, SRCPG-632, SAFSW-632, SGBD-63, SCBD-63, SAF-632SS & SAF-63112SS

For 3" (90/125mm) double wall pipes:

SMEDW-90, SMEDWC-90, SCEDW-90, SGEDW-90, STEDW-90, SETF-90, SETFV-90, SFLAK-90, SFLAK-90SSV, STPC-90-A, SAWFDNP-903, SAMNP-903, SAM-903SS, SAFNP-903, SAF-903SS & SRCPG-903

For 4" (110/125mm) double wall pipes:

SMEDWR-110125, SCEDW-110, SGEDW-110, STEDWR-110125, SETFC-110, SETFCV-110, SETFR-110125, SETFVR-110125, SETFVKFLA-110, SFLAK-110, SFLAK-110SSV, SAWMDNP-1104, SAWFDNP-1104, SAMNP-1104, SAM-1104SS, SAFNP-1104 & SAF-1104SS

For 6" (160/225mm) double wall pipes:

SMEDWR-160225, SCEDWR-160225, SGEDWR-160225, SETFR-160225, SETFVR-160225 & SFLAK-160

For the **fill pipe** are used:

#### Pipes Single wall

Inches	Smartflex code	I.D.	O.D.
3"	19TSMAU90	75,8	90
4"	19TSMAU110	93	110
6"	19TSMAU160	135,6	160

#### Pipes Double wall

Inches	Smartflex code	O.D. prim. pipe	O.D. sec. pipe
3"	19TSMAUD90	90	125
4"	19TSMAUD110	110	125
6"	19TSMAUD160	160	225

**Thermoplastic piping systems**

**APPLICATION AND USE**

**Fittings**

For 3" (90mm) single wall pipes:  
SMEN-90, SCE-90, SGE-90, STE-90, STPCL-90, SFLAK-90,  
SFLAK-90SSV, SAMNP-903, SAM-903SS, SAFNP-903, SRCPG-903,  
SAF-903SS & STPC-90-U

For 4" (110mm) single wall pipes:  
SMEN-110, SCE-110, SGE-110, STE-110, STPCL-110, SFLAK-110,  
SFLAK-110SSV, SAMNP-1104, SAM-1104SS,  
SAFNP-1104, SAF-1104SS & STPC-110-U

For 6" (160mm) single wall pipes:  
SMEN-160, SCE-160, SGE-160, STE-160, SFLAK-160(SSV), SFLAK-  
160, & STPCL-160

For 3" (90/125mm) double wall pipes:  
SMEDW-90, SMEDWC-90, SCEDW-90, SGEDW-90, STEDW-90,  
SETF-90, SETFV-90, SFLAK-90, SFLAK-90SSV, STPC-90-U,  
SAWFDNP-903, SAMNP-903, SAM-903SS, SRCPG-903, SAFNP-903  
& SAF-903SS

For 4" (110/125mm) double wall pipes:  
SMEDWR-110125, SCEDW-110, SGEDW-110, STEDWR-110125,  
SETFC-110, SETFCV-110, SETFR-110125, SETFVR-110125,  
SETFVKFLA-110, SFLAK-110, SFLAK-110SSV, SAWMDNP-1104,  
SAWFDNP-1104, SAMNP-1104, SAM-104SS, SAFNP-1104,  
SAF-1104SS & STPC-110-U

For 6" (160/225mm) double wall pipes:  
SMEDWR-160225, SCEDW-160225, SGEDWR-160225, SETFR-  
160225, SETFVR-160225 & SFLAK-160

For **vapour recovery** are used:

**Pipes Single wall**

Inches	Smartflex code	I.D.	O.D.
1"	19TSMU32	26,4	32
1¼"	19TSMU40	33,2	40
1½"	19TSMU50	41,8	50
2"	19TSMU63	52,8	63
3"	19TSMU90	75,8	90

**Pipes Double wall**

Inches	Smartflex code	O.D. prim. pipe	O.D. sec. pipe
1½"	19TSMU50	50	63
2"	19TSMU63	63	75
3"	19TSMU90	90	125

**Fittings**

For 1" (32mm) single wall pipes:  
SME-32, SCE-32, SGE-32, STELV-32, STPCL-32, SAMNP-321,  
SAFNP-321, SAMONP-321, SAFONP-321, SRCPG-321, SFLAK-  
32(SSV), SFLAK-32 & STPC-32-U

For 1 1/4" (40 mm) single wall pipes:  
SME-40, SGE-40, STELV-40, SAMNP-40114, SAM-40114SS, SAF-  
40114SS, SAFNP-40114, SAMONP-40114, SAFONP-40114, SFLAK-  
40(SSV), SFLAK-40, SAPR-40 & STPC-40-U

For 1½" (50mm) single wall pipes:  
SME-50, SCE-50, SGE-50, STE-50, STPCL-50, SAMONP-50112,  
SAMNP-50112, SAMNP-502, SAM-50112SS, SAPR-50,  
SGBEXT-50, SRCPG-50112, SAFSW-50112, SGB-50, SFLAK-  
50(SSV), SFLAK-50 STPC-50-U & SR-5032

For 2" (63mm) single wall pipes:  
SME-63, SCE-63, SGE-63, STELV-63, STPCL-63,  
SAMONP-632, SAMNP-632, SAM-632SS, SAMNP-63112, SAM-  
63112SS, SAPR-63, SGBEXT-63, STPC-63-U, STPC-6350,  
SALM-63112T70, SALM-63112T45SS, SRCPG-632, SAFSW-632,  
SGB-63, SFLAK-63(SSV), SFLAK-50, SR-6350 & SRDEL-6350

For 3" (90mm) single wall pipes:  
SMEN-90, SCE-90, SGE-90, STE-90, STPCL-90, SFLAK-90,  
SFLAK-90SSV, SAMNP-903, SAM-903SS, STPC-90-U, SRCPG-  
903, SR-9063, SR-9050, & SRDEL-9063

For 1" (32/40mm) double wall pipes:  
SMEDW-32, SGEDW-32, SGBD-32, SETFC-32, SETFCV-32,  
STPC-32-U, SRCPG-321, SAMNP-321, SAM-321SS, SAFNP-  
321, SFLAK-32(SSV) & SFLAK-32

For 1½" (50/63mm) double wall pipes:  
SMEDW-50, SMEDWC-50, SCEDW-50, SGEDW-50, STEDW-50,  
SETF-50, SETFC-50, SETFV-50, SETFCV-50, SAPR-50, STPC-  
50-U, SFLAK-50(SSV), SFLAK-50, SAWFDNP-50112, SAMONP-  
50112, SCBD-50, SGBD-50, SRCPG-50112, SAFSW-50112,  
SAMNP-50112 & SAM-50112SS

For 2" (63/75mm) double wall pipes:  
SMEDW-63, SMEDWC-63, SCEDW-63, SGEDW-63, STEDW-63,  
SETF-63, SETFC-63, SETFV-63, SETFCV-63, SAPR-63, STPC-  
63-U, STPC-6350, SAWFDNP-632, SAMONP-632, SALM-  
63112T70, SALM-63112T45SS, SRCPG-632, SAFSW-  
632, SGBD-63, SCBD-63, SFLAK-63(SSV), SFLAK-63, SAMNP-  
632, SAM-632SS, SAMNP-63112 & SAM-63112SS.

For 3" (90/125mm) double wall pipes:  
SMEDW-90, SMEDWC-90, SCEDW-90, SGEDW-90, STEDW-90,  
SETF-90, SETFV-90, SFLAK-90, SFLAK-90SSV, STPC-90-U,  
SAWFDNP-903, SRCPG-903, SAMNP-903 & SAM-903SS

For **vents** are used:

**Pipes Single wall**

Inches	Smartflex code	I.D.	O.D.
1"	19TSMU32	26,4	32
1¼"	19TSMU40	33,2	40
1½"	19TSMU50	41,8	50

**Pipes Double wall**

Inches	Smartflex code	O.D. prim. pipe	O.D. sec. pipe
1½"	19TSMU50	50	63
2"	19TSMU63	63	75

## Thermoplastic piping systems

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### APPLICATION AND USE

#### Fittings

For 1½" (50mm) single wall pipes:

SME-50, SCE-50, SGE-50, STE-50, STPCL-50,  
SAMONP-50112, SAMNP-502, SAMNP-50112, SAM-50112SS,  
SAPR-50, SGBEXT-50, SRCPG-50112, SAFSW-50112, SGB-50,  
SFLAK-50(SSV), SFLAK-50, STPC-50-U & SR-5032

For 2" (63mm) single wall pipes:

SME-63, SCE-63, SGE-63, STELV-63, STPCL-63,  
SAMONP-632, SAMNP-632, SAMNP-63112, SAM-632SS,  
SAM-63112SS, SAPR-63, SGBEXT-63, STPC-63-U, SALM-  
63112T70, SALM-63112T45SS, SRCPG-632, SAFSW-632, SGB-63,  
SR-6350 & SRDEL-6350

For 1½" (50/63mm) double wall pipes:

SMEDW-50, SMEDWC-50, SCEDW-50, SGEDW-50, STEDW-50,  
SETF-50, SETFC-50, SETFV-50, SETFCV-50, SAPR-50, STPC-50-U,  
SAWFDNP-50112, SAMONP-50112, SCBD-50, SGBD-50,  
SRCPG-50112, SAFSW-50112, SAMNP-50112, SAM-50112SS,  
SAMNP-502 & SRDW-5032

For 2" (63/75mm) double wall pipes:

SMEDW-63, SMEDWC-63, SCEDW-63, SGEDW-63, STEDW-63,  
SETF-63, SETFC-63, SETFV-63, SETFCV-63, SAPR-63, STPC-63-U,  
SAWFDNP-632, SAMONP-632, SAMNP-632, SAM-632SS, SAMNP-  
63112, SAM-63112SS, SALM-63112T70, SALM-63112T45SS,  
SRCPG-632, SAFSW-632, SGBD-63, SCBD-63, SAFNP-632, SAF-  
632SS, SAFNP-63112, SAF-63112SS & SRDW-6350

#### Standard pipe lengths

The single wall product pipe TSMA is available in coils in the sizes  $\varnothing$  32, 40, 50, 63 and 90 mm. This pipe is also available in straight lengths of 5.8 and 11.6 m for the sizes  $\varnothing$  32, 40, 50, 63, 90, 110 and 160 mm.

The double wall product pipe TSMAD is available in coils in the sizes  $\varnothing$  32, 50 and 63 mm. This pipe is also available in straight lengths of 5.8 and 11.6 m in sizes  $\varnothing$  32, 40, 50, 63, 90, 110 and 160 mm.

The vent, vapour recovery and fill pipe TSMAU is available in coils in the sizes  $\varnothing$  32, 40, 50, 63 and 90 mm. This pipe is available in straight lengths of 5.8 and 11.6 m for the sizes  $\varnothing$  32, 40, 50, 63, 90, 110 and 160 mm.

The double wall vent, vapour recovery and fill pipe TSMAUD is available in coils in the sizes  $\varnothing$  32, 50, 63. This pipe is also available in straight lengths of 5.8m and 11.6m (other lengths possible) in sizes  $\varnothing$  32, 40, 50, 63, 90, 110 and 160mm

The double walled pipe types TSMAD and TSMAUD are formed by using a secondary pipe type TSMAS which can also be ordered separately. The secondary containment pipe TSMAS is only available in straight lengths of 5.8m and 11.6m (other lengths possible). The sizes are:  $\varnothing$  40, 63, 75, 125 and 225 mm.

### MARKING

The products will be marked with the KIWA logo.

For the different products the marking will be as follows:

#### Pipes

Using indelible ink or paint, at least 1 imprint every 2 m.

#### Fittings

With a sticker stating:

- a barcode for traceability and warranty purposes
- type number
- voltage and welding time

By means of a moulded imprint stating:

- size
- product date code

The marking must include:

#### Pipes

- the Kiwa logo
- the word "Smartflex", the size and type of pipe
- product date or product code

### RECOMMENDATIONS FOR CUSTOMERS

Check at the time of delivery whether:

- the supplier has delivered in accordance with the agreement;
- the mark and the marking method are correct;
- the products show no visible defects as a result of transport etc.

If you should reject a product on the basis of the above, please contact:

- Supplier

and, if necessary,

- Kiwa Nederland B.V.

Consult the supplier's processing guidelines for the proper storage and transport methods.