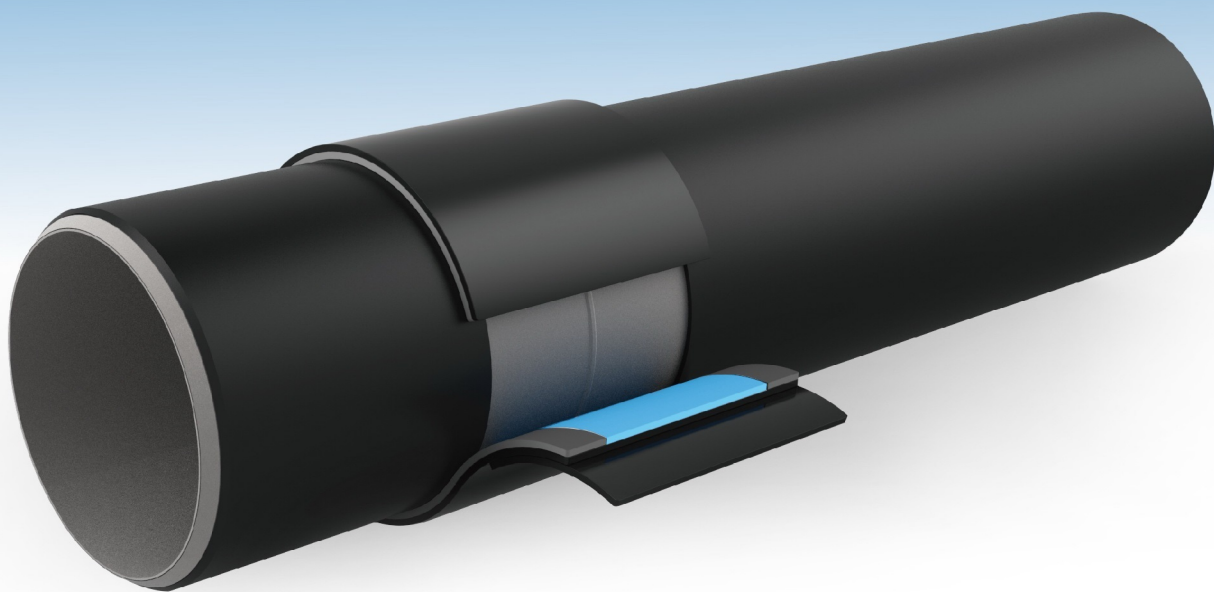


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CHERAY POLYMER

CORROSION PROTECTION

Product Manual



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CHERAY POLYMER,

Pipeline Anti-corrosion & Reinforcement Integrated Solution Supplier

- ✧ Specialized in R&D of pipeline corrosion protection since 1997
- ✧ First-Class R & D center of corrosion protection for pipeline coating
- ✧ Strategy cooperation with Chinese Academy of Sciences and Universities
- ✧ World First Class expert team, include tens of Ph.D and Master in Polymer and Corrosion protection from China Science Institute & famous university, holding more than 20 National Patents.
- ✧ Leading technology of pipeline coating and rehabilitation in the world
- ✧ Member of edit committee of China National Standard of Corrosion Protection
- ✧ China High-Tech Company approved by China State Government
- ✧ Post Doctor Research Work Station approved by China State Government.
- ✧ Leading supplier of PIPECHINA, CNPC and SINOPEC for pipeline coating integrated solution



Product Overview

Product	Type	Feature	Factory coating	Max Operation Temp. °C	Min. Preheat Temp °C
3LPE	HSS60 HSS80	Long term corrosion protection; Corrosion protection in high operating temperature conditions and severe environments; Excellent resistance to Cathodic disbondment; Resistance to moisture penetration and mechanical damage; Wet or dry epoxy application is optional; quick installation.	3LPE FBE	60 85	50 55
	HRSS-DD	the best solution of Direct Drill joint coating		80	70
3LPP	HSSPP	Long term corrosion protection; Excellent resistance to Cathodic disbondment; the best solution of joint coating for high operation temperature 3LPP pipe.	3LPP 3LPE FBE	110	145
	HSS120PP		3LPP FBE	120	145
	HSSPP		TSA	130	145
2LPE	3CS	Best resistance to cathodic disbondment, easy application, less heating, self-healing repair	3LPE FBE HDPUF AE	80	40
	HCS60	Best solution for joint coating without epoxy primer		65	80
	HCS80			80	120
	HIS-50	Long term corrosion protection; Ultra-low temperature application environment in winter		60	40
	HMS65	Friendly installation, less heating		70	50
	HMS80			80	50
PE Repair Patch	CRP-PE	PE coating repair system, easy application		100	100
PP Repair Patch	CRP-PP	PP coating repair system, easy application		130	100
Melt stick	MS	PE/PP Hot melt adhesive for fill damage of coating		100	--
Visco elastic	VET	Viscoelastic Corrosion Protection Tape		VET70 VET HT95	--
	VEP	Visco elastic Paste		VEP	---
Epoxy primer	CP-1	high performance liquid epoxy coatings designed for the corrosion protection of buried pipelines, operating at temperatures up to 130°C can be used for new construction, including girth welds, bends, fittings etc.	3LPE FBE 3LPP	130	50

HSS80 Heat Shrinkable Sleeve

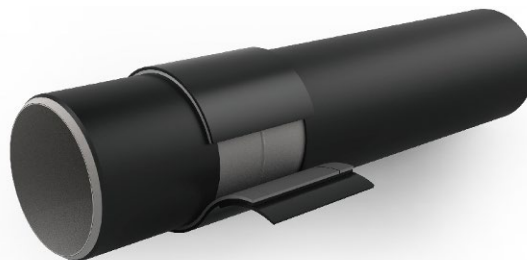
3-layer Girth weld field joint coatings

Description

HSS80 Heat shrinkable sleeve is designed for corrosion protection of girth weld joint buried steel pipeline, especially for 3PE/ FBE factory coating pipeline.

Construction: Three-layer system

- First layer:** Liquid epoxy primer CP-1, solvent-free two-component
Second layer: High shear strength hot-melt copolymer adhesive
Third layer: Radiation cross-linked, high density polyethylene backing, backing with **TIP** (Temperature Indicator Pattern) is optional.



Features & Benefits

- Excellent multifunctional adhesive allow for lower installation pre-heat temperature and super bonding to 3LPE and FBE, offer fully resistant to shear forces induced by soil and thermal movements.
- Superior cathodic disbondment and hot water immersion resistance offers the optimum barrier long term protection against corrosion.
- Saves time & cost by lower preheat temperature, wet epoxy primer application.
- Pattern backing provides a "heating temperature indicator" for application of heat, ensures correct application heating.

Application guide	HSS 80
Standard reference	BS-EN ISO 21809-3:2016+A1:2020 14B-2 EN 12068 Class C HT80 UV NACE RP0303
Compatible line coatings	FBE, 3LPE
Soil stress restriction	None
Max operating temperature	85°C
Preheat temperature	70 - 90°C
Recommended pipe preparation	SA 2½

Ordering information

HSS type products are available: • as cut piece (pre-cut sleeve with separate closure patch) • as a roll (closure patches to be ordered separately) Select sleeve width that will overlap onto the mill-applied coating by 2 inches (50 mm) minimum on each side of the weld joint. Sleeve width(mm): 18", 20", 24", 36" Other width (10"-36") are available, please note when make order.	Product thickness (mm)			
	PE backing	Hot Melt Adhesive	Total thickness (as supplied)	Coating Total thickness After applied
	0.8	1.0	1.8	2.0
	1.0	1.2	2.2	2.4
	1.0	1.5	2.5	2.8
	1.2	1.5	2.7	3.0
	1.45	1.65	3.1	3.25
	Other sleeve thickness (1.6~3.5mm) are available, Please note when place order.			

Standard Ordering options

Cut piece		* Roll form(closure patches to be ordered separately)	
Example:	HSS 80-24X500/2.5	Example	HSS 80-30x450/2.8-RL
80	Operating temperature 80°C	80	Operating temperature 80°C
24	Outside pipe diameter in inch	30	Roll length in m
500	Sleeve width in mm	450	Roll width in mm
/2.5	Sleeve thickness in mm	2.7	Roll thickness as supplied in mm
		-RL	Supplied in rolls

Sleeve cut lengths and appropriate closure patch widths depend on the pipe size and product construction, see application table.

For proper product installation, see installation instruction.

HSS type products are installed with CP-1 Epoxy primer, epoxy primers are ordered separately.

For more ordering information on epoxy primers see application tables.

For more ordering information on epoxy primers see application tables.

Product properties:

Physical Properties	Test Method	HSS80 Typical Value
PE backing		
Tensile strength at break	ASTM D-638/NACE PRO0303	22 MPa (3190Psi)
Elongation to break	ASTM D-638/NACE PRO0303	600%
Hardness Shore D	ASTM D 2240	57
Dielectric Strength	ASTM D149	35KV/mm
Moisture absorption	ASTM D570	0.03%
Epoxy (CP-1)		
Solid content		≥99.5%
Pull off adhesion strength of epoxy to steel at 23 °C	ASTM D4541	20MPa(2900Psi)
Adhesive		
Ring and Ball Softening point of adhesive	ASTM E-28	122°C
Lap shear strength	ISO 21809 -3 Annex J at 10 mm/min	4.3MPa
@23°C	ASTM D1002	0.38 MPa
@80°C		
Installed Sleeve		
Holiday detection at 5Kv/mm+5Kv	ISO 21809-3 Annex C	No Holidays
Impact resistance	ISO 21809-3 Annex D	> 7 J/mm
(holiday detection at 5 kV/mm +5 kV)	EN12068 C HT 80 UV	> 15 J pass
Indentation Resistance (holiday detection at 5 kV/mm +5 kV, Pressure Residual thickness	ISO 21809-3 Annex E EN12068 C HT 80 UV	10 N/mm ² >0.6mm
Cathodic Disbondment 28 days	ISO 21809-3 Annex G	3 mm
@23°C	EN12068 C HT 80 UV	8.5 mm
@80°C		
Peel strength at 10 mm/min to pipe surface and to polyolefin plant coating	ISO 21809 -3 Annex H EN12068 C HT 80 UV	12 N/mm 0.7 N/mm
@ 23°C		
@ 80°C		
Peel strength at 10 mm/min to pipe surface and to polyolefin plant coating after 100-day hot-water immersion test at @ 80°C	ISO 21809 -3 Annex H & I	0.87
Thermal Ageing Resistance (aged at Tmax + 20 °C)	ISO 21809-3, Annex M	0.91
— Elongation at break E ₁₀₀ /E ₇₀)	EN12068 C HT 80 UV	0.88
— Peel strength to pipe surface(P ₁₀₀ /P ₇₀)		
Hot water immersion Resistance at 80°C for 120 days	ASTM D-870	no blisters or de-lamination, or water under sleeve
Soil Stress Creep Resistance of installed sleeve at 80°C	TP 206	0.06 inch after 24hrs
Ultraviolet resistance	EN12068 C HT 80 UV	Pass
Low temperature flexibility	ASTM D-2671-C	-30°C

Service Life: More than 40 years

Normal Packing: Carton (Maximum 30kg)

Storage Condition:

- To ensure maximum performance, store CHERAY POLYMER products in a dry, ventilated area.
- Keep products sealed in original cartons and avoid exposure to direct sunlight, rain, snow, dust or other adverse environmental elements.
- Avoid prolonged storage at temperatures above 40°C or below -20°C.
- Product installation should be done in accordance with local health and safety regulations.

Shelf Life: 2 years, under correct storage condition.

HSS60 Heat Shrinkable Sleeve

3-layer Girth weld field joint coatings

Description

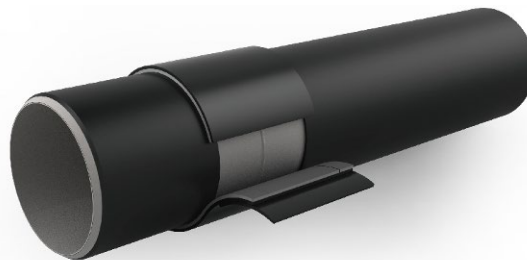
HSS60 Heat shrinkable sleeve is designed for corrosion protection of girth weld joint buried steel pipeline, especially for 3PE/ FBE factory coating pipeline.

Construction: Three-layer system

First layer: Liquid epoxy primer CP-1, solvent-free two-component
Wet film application

Second layer: High shear strength hot-melt copolymer adhesive

Third layer: Radiation cross-linked, high density polyethylene backing,
backing with **TTP** (Temperature Indicator Pattern) is optional.



Features & Benefits

- Excellent multifunctional adhesive allow for lower installation pre-heat temperature and super bonding to 3LPE and FBE, offer fully resistant to shear forces induced by soil and thermal movements.
- Superior cathodic disbondment and hot water immersion resistance offers the optimum barrier long term protection against corrosion.
- Saves time & cost by lower preheat temperature, wet epoxy primer application.
- Pattern backing provides a "heating temperature indicator" for application of heat, ensures correct application heating.

Application guide	HSS 60
Standard reference	ISO 21809-3 2016 14B-1 EN 12068 Class C 60 UV NACE RP0303
Compatible line coatings	FBE, 3LPE
Soil stress restriction	None
Max operating temperature	60°C
Preheat temperature	50 - 70°C
Recommended pipe preparation	SA 2½

Ordering information

HSS type products are available: • as cut piece (pre-cut sleeve with separate closure patch) • as a roll (closure patches to be ordered separately) Select sleeve width that will overlap onto the mill-applied coating by 2 inches (50 mm) minimum on each side of the weld joint. Sleeve width(mm): 18", 20", 24", 36" Other width (10"-36") are available, please note when make order.	Product thickness (mm)		
	Adhesive	Total thickness (as supplied)	Total thickness (recovered on pipe)
	1.0	1.8	2.0
	1.2	2.2	2.4
	1.5	2.5	2.8
	1.5	2.7	3.0
	1.7	3.2	3.5
Other sleeve thickness (1.4~3.5mm) are available, Please note when place order.			

Standard Ordering options

	Cut piece		* Roll form(closure patches to be ordered separately)
Example:	HSS 60-24X18/2.5	Example	HSS 60-20x100f/2.7-RL
60	Operating temperature 60°C	60	Operating temperature 60°C
24	Outside pipe diameter in inch	100f	Roll length in feet
18	Sleeve width in inch	20	Roll width in inch
/2.5	Sleeve thickness in mm	2.7	Roll thickness in mm
		-RL	Supplied in rolls

Tape cut lengths and appropriate closure patch widths depend on the pipe size and product construction, see application table.

For proper product installation, see installation instruction.

HSS type products are installed with CP-1 Epoxy primer, epoxy primers are ordered separately.

For more ordering information on epoxy primers see application tables.

Product properties:

Physical Properties	Test Method	HSS60 Typical Value
PE backing		
Tensile strength at 23°C	NACE PRO0303/ ASTM D-638	22 Mpa
Elongation to break	NACE PRO0303/ASTM D-638	600%
Hardness	ASTM D2240	57
Volume Resistivity @ 23°C	ASTM D257	1.2x10 ¹⁷ ohm-cm
Adhesion properties		
Holiday detection at 5KV/mm+5KV	ISO 21809-3 Annex C	No Holidays
Impact resistance (holiday detection at 5 KV/mm+5 KV)	ISO 21809-3 Annex D EN12068	>15J
Indentation Resistance @ T _{max} : Pressure Residual thickness	ISO 21809-3 Annex E EN12068	10 N/mm ² 1.7mm,no holiday at 15KV
Cathodic Disbondment @23°C, 30 days @ 65°C, 30 days	ISO 21809-3 Annex G EN12068	2.0 mm 6.0 mm
Adhesion strength at 10 mm/min @ 23°C @T _{max}	ISO 21809-3 Annex H EN12068	168 N/cm 6 N/cm
Peel strength at 10 mm/min to pipe surface and to polyolefin plant coating after 100-day hot-water immersion test at T _{max} P ₁₀₀ /P ₀	ISO 21809 -3 Annex H & I	0.80
Lap shear strength at 10 mm/min @23°C @ T _{max}	ISO 21809 -3 Annex J	3.6 N/mm ² 0.32 N/mm ²
Thermal Ageing Resistance (aged at T _{max} + 20 °C) --Elongation to break E ₁₀₀ /E ₇₀ --Peel strength to pipe surface P ₁₀₀ /P ₇₀	ISO 21809-3, Annex M	0.85 0.85

Service Life: More than 40 years

Normal Packing: Carton (Maximum 30kg)

Storage Condition:

- To ensure maximum performance, store CHERAY POLYMER products in a dry, ventilated area.
- Keep products sealed in original cartons and avoid exposure to direct sunlight, rain, snow, dust or other adverse environmental elements.
- Avoid prolonged storage at temperatures above 40°C or below -20°C.
- Product installation should be done in accordance with local health and safety regulations.

Shelf Life: 18 month, under correct storage condition.

HSSPP Heat Shrinkable Wrap-around Sleeve

Girth weld field joint coatings for 3-layer PP coated pipes

Description

HSS PP Heat shrinkable wrap-around sleeve 3-layer system is engineered for special need corrosion protection for high operation temperature pipeline joints. Once installed, the system effectively bonds and protects steel substrates and common main line pipe with coatings such as PP or other coatings. Especially applied for rapid installation requirement under higher stress conditions caused by elevated temperatures.

Construction: Tri-layer system

First layer: FBE or epoxy primer (sleeve installed after epoxy primer cured)

Second layer: High copolymer hot-melt adhesive

Third layer: Radiation cross-linked polypropylene backing



of

Features & Benefits

- Excellent multifunctional adhesive allow for lower installation pre-heat temperature and super bonding to coating.
- Superior cathodic disbondment and hot water immersion resistance offers the optimum barrier long term protection against corrosion.
- Easy field installation, saves time & cost, HSS PP can be installed quickly and easily in most environments

Application guide	HSSPP
Performance	DIN 30678 DIN-EN12068 ISO 21809-3
Compatible line coatings	FBE, PP
Soil stress restrictions	None
Max operating temperature	110°C
Min preheat temperature	145°C
Recommended pipe preparation	SA 2½

Ordering information

HSS type products are available:

- as cut piece (pre-cut sleeve with separate closure patch)
- as a roll (closure patches to be ordered separately)

Select sleeve width that will overlap onto the mill-applied coating by 2 inches (50 mm) minimum on each side of the weld joint.

Product recommend thickness(mm): 1.8, 2.2, 2.5, 3.0

Other product thickness (1.6~3.5mm) are available, please note when make order.

Product recommend width(inch): 18", 20", 24", 34"

Other product width (12"~34") are available, please note when make order.

Standard Ordering Options

Cut piece		* Roll form(closure patches to be ordered separately)	
Example:	HSSPP-24X18/2.5	Example	HSSPP-20x100f/2.2-RL
PP	Polypropylene backing	100f	Roll length in feet
24	Outside pipe diameter in inch	20	Roll width in inch
18	Sleeve width in inch	2.2	Roll thickness in mm
/2.5	Sleeve thickness in mm	-RL	Supplied in rolls

Covers wide range of operating temperature ratings, offers a solution for nearly every application. Sleeve cut lengths and appropriate closure patch widths depend on the pipe size and product construction, see application table.

For proper product installation, see installation instruction.

Product properties:

Property	Test Method	Typical Value HSSPP
PP Backing		
Tensile strength	ASTM D-638	28MPa
Elongation	ASTM D-638	600%
Hardness, Shore D	ASTM D-2240	62
Hot Melt Adhesive		
Softening point	ASTM E-28	≥145°C
Sleeve installation system		
Thickness@23°C	ISO 21809-3 Annex B	>0.85xnormal value
Holiday detection at 5kV/mm+5kV@23°C	ISO 21809-3 Annex C	No Holiday
Impact resistance (holiday detection @5kv +5kv/mm after recovery)	ISO 21809-3 Annex D	10 J/mm
Indentation resistance (holiday detection @5kv +5kv/mm after recovery) residual thickness	ISO 21809-3 Annex E	10.0 N/mm ² 1.8mm
Tmax		
Cathodic disbondment @28days @23°C Tmax limited to 95°C	ISO 21809-3 Annex G	2.0mm 8.0mm
Peel strength@10mm/min To Pipe surface primed with epoxy and to plant coating @23°C @Tmax	ISO 21809-3 Annex H	17.5N/mm 3.2N/mm
Lap shear strength @10mm/min @23°C @Tmax	ISO 21809-3 Annex J @ 10 mm/min	9.8 N/mm ² 1.2 N/mm ²
Thermal ageing resistance (aged @ Tmax +20°C) -Elongation at break E ₁₀₀ /E ₇₀ -Peel strength to pipe surface A ₁₀₀ /A ₀	ISO 21809-3 Annex M	≥0.75 ≥0.75
Oxidation induction time on the backing at 220°C	ISO 11357-6	≥25min
thermal stability at 130°C for 50 weeks, installed system	ISO 21809-3 Annex N	No cracks

Service Life: More than 30 years

Normal Packing: Carton (Maximum 45kg)

Storage Condition:

- To ensure maximum performance, store CHERAY POLYMER products in a dry, ventilated area.
- Keep products sealed in original cartons and avoid exposure to direct sunlight, rain, snow, dust or other adverse environmental elements.
- Avoid prolonged storage at temperatures above 50°C or below -5°C.
- Product installation should be done in accordance with local health and safety regulations.

HSS 120PP Heat Shrinkable Sleeve

Girth weld field joint coatings for 3-layer PP coated pipes

Description

HSS 120PP Heat shrinkable sleeve 3-layer system is engineered for special need of corrosion protection for high operation temperature pipeline joints. Once installed, the system effectively bonds and protects steel substrates and common main line pipe with coatings such as PP or other coatings. Especially applied for rapid installation requirement under higher stress conditions caused by elevated temperatures.

Construction: Tri-layer system

First layer: FBE or epoxy primer (sleeve installed after epoxy primer cured)

Second layer: High copolymer hot-melt adhesive

Third layer: Radiation cross-linked polypropylene backing



Features & Benefits

- Excellent multifunctional adhesive allow for lower installation pre-heat temperature and super bonding to coating.
- Superior cathodic disbondment and hot water immersion resistance offers the optimum barrier long term protection against corrosion.
- Easy field installation, saves time & cost, HSS PP can be installed quickly and easily in most environments

Application guide	HSS 120 PP
Performance	DIN 30678 DIN-EN12068 ISO 21809-3 14D-2
Compatible line coatings	FBE, PP
Soil stress restrictions	None
Max operating temperature	120°C
Min preheat temperature	145°C
Recommended pipe preparation	SA 2½

Ordering information

HSS type products are available:

- as cut piece (pre-cut sleeve with separate closure patch)
- as a roll (closure patches to be ordered separately)

Select sleeve width that will overlap onto the mill-applied coating by 2 inches (50 mm) minimum on each side of the weld joint.

Product recommend thickness(mm): 1.8, 2.2, 2.5, 3.0

Other product thickness (1.6~3.5mm) are available, please note when make order.

Product recommend width(inch): 18", 20", 24", 34"

Other product width (12"~34") are available, please note when make order.

Standard Ordering Options

Cut piece		* Roll form(closure patches to be ordered separately)	
Example:	HSS 120PP-24X18/2.5	Example	HSS 120PP-20x100f/2.2-RL
120	Max Operation temperature	100f	Roll length in feet
24	Outside pipe diameter in inch	20	Roll width in inch
18	Sleeve width in inch	2.2	Roll thickness in mm
/2.5	Sleeve thickness in mm	-RL	Supplied in rolls

Covers wide range of operating temperature ratings, offers a solution for nearly every application. Sleeve cut lengths and appropriate closure patch widths depend on the pipe size and product construction, see application table.

For proper product installation, see installation instruction.

Product properties:

Property	Test Method	Typical Value HSS120PP
PP Backing		
Tensile strength	ASTM D-638	28MPa
Elongation	ASTM D-638	600%
Hardness, Shore D	ASTM D-2240	62
Hot Melt Adhesive		
Softening point	ASTM E-28	≥150°C
Sleeve installation system		
Thickness@23°C	ISO 21809-3 Annex B	>0.85xnormal value
Holiday detection at 5kV/mm+5kV@23°C	ISO 21809-3 Annex C	No Holiday
Impact resistance (holiday detection @5kv +5kv/mm after recovery)	ISO 21809-3 Annex D	10 J/mm
Indentation resistance (holiday detection @5kv +5kv/mm after recovery) residual thickness	ISO 21809-3 Annex E	10.0 N/mm ²
Tmax		1.3mm
Cathodic disbondment @28days @23°C Tmax limited to 95°C	ISO 21809-3 Annex G	2.5mm 8.5mm
Peel strength@10mm/min To Pipe surface primed with epoxy and to plant coating @23°C @Tmax	ISO 21809-3 Annex H	16.8N/mm 4.8N/mm
Lap shear strength @10mm/min @23°C @Tmax	ISO 21809-3 Annex J @ 10 mm/min	10.2N/mm ² 1.4N/mm ²
Thermal ageing resistance (aged @ Tmax +20°C) -Elongation at break E ₁₀₀ /E ₇₀ -Peel strength to pipe surface A ₁₀₀ /A ₀	ISO 21809-3 Annex M	≥0.75 ≥0.75
Oxidation induction time on the backing at 220°C	ISO 11357-6	≥25min
thermal stability at 130°C for 50 weeks, installed system	ISO 21809-3 Annex N	No cracks

Service Life: More than 30 years

Normal Packing: Carton (Maximum 45kg)

Storage Condition:

- To ensure maximum performance, store CHERAY POLYMER products in a dry, ventilated area.
- Keep products sealed in original cartons and avoid exposure to direct sunlight, rain, snow, dust or other adverse environmental elements.
- Avoid prolonged storage at temperatures above 50°C or below -5°C.
- Product installation should be done in accordance with local health and safety regulations.

HSS 130PP Heat Shrinkable Sleeve

Girth weld field joint coatings for 3-layer PP coated pipes

Description

HSS 130PP Heat shrinkable sleeve 3-layer system is engineered for special need of corrosion protection for high operation temperature pipeline joints. Once installed, the system effectively bonds and protects steel substrates and common main line pipe with coatings such as PP or other coatings. Especially applied for rapid installation requirement under higher stress conditions caused by elevated temperatures.

Construction: Tri-layer system

First layer: FBE or epoxy primer (sleeve installed after epoxy primer cured)

Second layer: High copolymer hot-melt adhesive

Third layer: Radiation cross-linked polypropylene backing



Features & Benefits

- Excellent multifunctional adhesive allow for lower installation pre-heat temperature and super bonding to coating.
- Superior cathodic disbondment and hot water immersion resistance offers the optimum barrier long term protection against corrosion.
- Easy field installation, saves time & cost, HSS PP can be installed quickly and easily in most environments

Application guide	HSS 130PP
Performance	DIN 30678 DIN-EN12068 ISO 21809-3 14D-2
Compatible line coatings	FBE, PP
Soil stress restrictions	None
Max operating temperature	130°C
Min preheat temperature	145°C
Recommended pipe preparation	SA 2½

Ordering information

HSS type products are available: • as cut piece (pre-cut sleeve with separate closure patch) • as a roll (closure patches to be ordered separately) Select sleeve width that will overlap onto the mill-applied coating by 2 inches (50 mm) minimum on each side of the weld joint.		Product recommend thickness(mm): 1.8, 2.2, 2.5, 3.0 Other product thickness (1.6~3.5mm) are available, please note when make order. Product recommend width(inch): 18", 20", 24", 34" Other product width (12"~34") are available, please note when make order.	
Standard Ordering Options			
Cut piece		* Roll form(closure patches to be ordered separately)	
Example:	HSS 130PP-24X18/2.5	Example	HSS 130PP-20x100f/2.2-RL
PP	Polypropylene backing	100f	Roll length in feet
24	Outside pipe diameter in inch	20	Roll width in inch
18	Sleeve width in inch	2.2	Roll thickness in mm
/2.5	Sleeve thickness in mm	-RL	Supplied in rolls

Covers wide range of operating temperature ratings, offers a solution for nearly every application. Sleeve cut lengths and appropriate closure patch widths depend on the pipe size and product construction, see application table.
For proper product installation, see installation instruction.

Product properties:

Property	Test Method	Typical Value HSS130PP
PP Backing		
Tensile strength	ASTM D-638	28MPa
Elongation	ASTM D-638	600%
Hardness, Shore D	ASTM D-2240	60
Hot Melt Adhesive		
Softening point	ASTM E-28	≥150°C
Sleeve installation system		
Thickness@23°C	ISO 21809-3 Annex B	>0.85xnormal value
Holiday detection at 5kv/mm+5kv@23°C	ISO 21809-3 Annex C	No Holiday
Impact resistance (holiday detection @5kv +5kv/mm after recovery)	ISO 21809-3 Annex D	10 J/mm
Indentation resistance (holiday detection @5kv +5kv/mm after recovery) residual thickness @130°C	ISO 21809-3 Annex E	10.0 N/mm ² >1.2mm
Cathodic disbondment, 28days @23°C @ 95°C	ISO 21809-3 Annex G	2.5mm 7.5mm
Peel strength@10mm/min To Pipe surface primed with epoxy and to plant coating @23°C @130°C	ISO 21809-3 Annex H	16.5N/mm 4.2N/mm
Lap shear strength @10mm/min @23°C @130°C	ISO 21809-3 Annex J @ 10 mm/min.	9.3N/mm ² 1.2N/mm ²
Thermal ageing resistance (aged @ Tmax +20°C) -Elongation at break E ₁₀₀ /E ₇₀ -Peel strength to pipe surface A ₁₀₀ /A ₀	ISO 21809-3 Annex M	≥0.85 ≥0.85
Oxidation induction time on the backing at 220°C	ISO 11357-6	≥25min
thermal stability at 130°C for 50 weeks, installed system	ISO 21809-3 Annex N	No cracks

Service Life: More than 30 years

Normal Packing: Carton (Maximum 45kg)

Storage Condition:

- To ensure maximum performance, store CHERAY POLYMER products in a dry, ventilated area.
- Keep products sealed in original cartons and avoid exposure to direct sunlight, rain, snow, dust or other adverse environmental elements.
- Avoid prolonged storage at temperatures above 50°C or below -5°C.
- Product installation should be done in accordance with local health and safety regulations.

HRSS-DD Direct Drill Heat Shrinkable Wrap-around Sleeve

High performance fiberglass reinforced coating protection sleeve

Description

HRSS-DD is designed for girth weld joint corrosion protection on pipe used in directional drilling application or offshore towing pipe outer coating protection.

Construction: Three-layer system

First layer: Liquid epoxy primer CP-1, solvent-free two-component.

Second layer: High shear strength hot-melt copolymer adhesive.

Third layer: High performance fiberglass reinforced radiation cross-linked polyethylene backing.



Features & Benefits

- HRSS-DD has excellent resistance to shear and peel force after installed and offers abrasion and wear resistance at pull through application. Simultaneously HRSS-DD has excellent anti-corrosion performance and easy installation, it could be installed cover wet epoxy primer instead of dry epoxy primer coating.

Application guide

Ordering guide

Performance	EN 12068 Class C ISO21809-3 14C	HRSS-DD Heat shrinkable direct drill wrap around sleeve, could be ordered bulk rolls or in kit	
Compatible line coatings	FBE, PE, PP	Example:	HRSS-DD 20"×3.0(15)
Soil stress restriction	None	HRSS-DD	Heat shrinkable direct drill wrap around sleeve
Max operating temperature	60°C (140°F)	20"	Sleeve width, inch
Min preheat temperature	70°C (158°F)	3.0	Sleeve thickness, mm
Recommended pipe preparation	SA 2½ or ST 3.0	(15)	Sleeve length 15m(roll)

Specification

All specification of HRSS-DD is in accordance with difference pipeline diameter with outer corrosion protection. Backing thickness is 1.8mm and adhesive thickness is 1.2mm. If need, other specification is available, please make note in the order.



Manual Application



Induction heating application

Property	Test Method	Typical Value HRSS-DD
Impact resistance 23°C Class C50	DIN 30672	No holidays when tested at 20kV >70% of original resistance thickness left
Indentation resistance: 60°C Pressure Residual thickness	ISO21809 Annex E	10.0N/mm ² 2.3mm
Peel Strength at 10 mm/min to pipe surface and to polyolefin plant coating 23°C 60°C	ISO21809 Annex H.1	15.3N/mm 1.2N/mm
Peel strength at 10 mm/min to pipe surface and to polyolefin plant coating after 100-day hot-water immersion test at Tmax limited 23 °C P100/P0	ISO21809 Annex H & Annex I	>0.80
Lap shear strength at 10 mm/min 23°C 60°C	ISO21809 Annex J	3.8N/mm ² 0.43N/mm ²
Cathodic disbondment resistance 23°C 60°C 30days	ISO21809 Annex G	3.0mm 7.5mm
Bursting strength of reinforced backing (B100/B70) 23°C	ISO21809 Annex O	>0.80
Bursting strength of reinforced backing 23°C	ISO21809 Annex O	2620N

Service Life: More than 30 years

Normal Packing: Carton (Maximum 45kg)

Storage Condition:

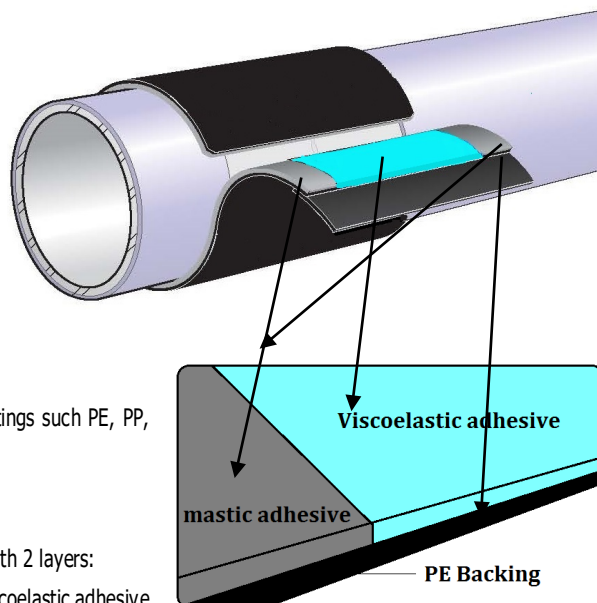
- To ensure maximum performance, store CHERAY POLYMER products in a dry, ventilated area.
- Keep products sealed in original cartons and avoid exposure to direct sunlight, rain, snow, dust or other adverse environmental elements.
- Avoid prolonged storage at temperatures above 38°C or below -15°C.
- Product installation should be done in accordance with local health and safety regulations.

Shelf life: 18 months, under correct storage condition.

3C Dual-Adhesive Heat Shrinkable Sleeve

Viscoelastic-mastic adhesive composite configuration coating for field girth weld joint

3C Heat Shrinkable Sleeve (*Viscoelastic-Mastic Composite Configuration Coating Sleeve, 3CS*), is the latest product specially designed and developed by Cheray Polymer Co., aim at pipeline field joint corrosion protection technology trend and client actual requirement. It completely solves various application defect of common heat shrinkable wraparound sleeve, such as complicated installation technological requirements, longer installation time, unstable manual installation quality and unsatisfied corrosion protection long term performance. 3CS has excellent competitive advantage as follow: *installation technological is simple and quick; easy learn and operate; much save construction and maintenance cost; excellent corrosion protection long term performance*. It is the perfect solution of field joint corrosion protection. 3C Heat shrinkable wraparound sleeve is compatible to girth weld field joint coatings such PE, PP, FBE and PU, also for pipe bend, pipe elbow, fitting and coating repairing.



Configuration :

3C Dual-Adhesive Heat Shrinkable Sleeve is composited adhesive configuration with 2 layers:

Layer 1: Viscoelastic adhesive and mastic adhesive composite configuration. Viscoelastic adhesive coated on the central part of sleeve, mastic adhesive coated on the two side parts like a belt along the sleeve radial direction, two type of adhesive seamless connect.

Layer 2: Radiation cross-linked high density polyethylene.

Installation feature :

- Steel pipeline surface preparation just meet ST2.0~3.0, get rid of humidity absorbed water on steel surface is enough;
- No need coat epoxy primer;
- Closure patch is pre-installed, save time;
- Installation process is same with common heat shrinkable sleeve, post heating is not necessary after shrunk;
- Installation can be done under ambient temperature -40°C.

Benefit :

- Simple process, Very easy application;
- Saving application time, quick installation;
- Long term and high performance corrosion protection;
- Be suitable for multifarious coating system.

Shelf life:

2 years, under correct storage condition

- To ensure maximum performance, store CHERAY POLYMER products in a dry, ventilated area.
- Keep products sealed in original cartons and avoid exposure to direct sunlight, rain, snow, dust or other adverse environmental elements.
- Avoid prolonged storage at temperatures above 40°C or below -20°C.
- Product installation should be done in accordance with local health and safety regulations.

Product properties:

Application Guide		3C Heat Shrinkable Sleeve
Performance Standard		ISO/DIS 21809-3 13B
Compatible mainline coatings		PE, PP, FBE, PU
Soil stress restrictions		None
Max operating temperature		80°C
Environment temperature range		-40°C ~60°C
Specification		Order Information
Backing thickness mm	1.0, 1.2, 1.5	Example: 3CS-550/2.5
Adhesive thickness mm	0.8, 1.0, 1.5, 2.0	3CS - 3C Heat shrinkable wrap-around sleeve
Sleeve width mm	450, 500, 550, 600	550 - Sleeve width, mm
Pipe diameter	DN80- DN1200	2.5 - Sleeve total thickness, mm
width 400~750mm are available, please note when make order.		Closure patch is pre-attached.
Properties		
Property	Test method	3CS Typical Value
PE Backing		
Tensile strength	ASTM D638	22Mpa
Elongation at Break	ASTM D638	550%
Dielectric strength	ASTM D149	30MV/m
Volume resistivity	ASTM D257	$1.0 \times 10^{13} \Omega \cdot m$
Heat shock (225°C,4hrs)	ASTM D2671	No cracking, flow, or dripping
Thermal ageing (150°C,21d)	ASTM D638	
Tensile strength		17 Mpa
Elongation at break		400%
Visco-elastic Adhesive		
Low temperature Flexibility	ASTM D2671	<-40°C
Impact resistance	ISO 21809-3 Annex G	5J/mm
Cathodic disbondment resistance @65°C, 28d,	ISO 21809-3 Annex F	2mm
Mastic adhesive		
Low temperature Flexibility	ASTM D2671	<-40°C
Lap shear strength @23°C	ISO 21809-3	0.15MPa
@60°C	Annex L	0.04MPa
Peel strength @23°C To factory coating	ISO 21809-3 Annex D	22N/cm
Impact resistance @23°C	ISO 21809-3 Annex G	10J/mm
Peel Strength after Thermal ageing: Tmax+20°C		
@23°C to PE P ₁₀₀ /P ₀	ISO 21809-3	0.92
P ₁₀₀ /P ₇₀	annex N	0.90

HCS 60 /HCS80 Offshore Heat Shrinkable Sleeve

2-layer Girth weld field joint coatings

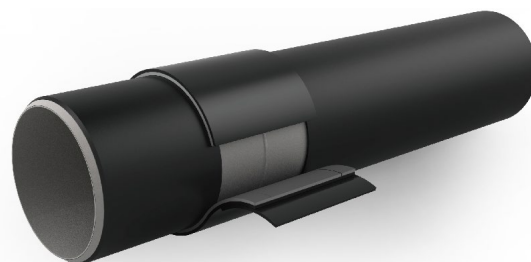
Description

HCS 60 /HCS80 /HCS100 Offshore heat shrinkable sleeve 2-layer system are engineered for special need of corrosion protection for offshore and submarine steel pipeline joints. Once installed, the system effectively bonds and protects steel substrates and common main line pipe with coatings such as AE, Coal tar, FBE, PE, PP and TSA. Especially applied for rapid installation requirement under higher stress conditions caused by elevated temperatures.

Construction: Two-layer system

First layer: Hot-melt adhesive

Second layer: Radiation cross-linked, high density polyethylene backing with **TIP** (Temperature Indicator Pattern)



Features & Benefits

- Excellent multifunctional adhesive allow for lower installation pre-heat temperature and super bonding to coating, offer fully resistant to shear forces induced by tide and thermal movements.
- Superior cathodic disbondment and hot water immersion resistance offers the optimum barrier long term protection against corrosion.
- Easy field installation, saves time & cost, HCS can be installed quickly and easily in most environments.
- Pattern backing provides a "heating temperature indicator" for application of heat. Ensures correct application heating.
- Covers wide range of operating temperature ratings, offers a solution for nearly every application.

Application guide	HCS 60	HCS 80
Performance	EN 12068 Class C50/ISO21809-3 14A-1	EN 12068 Class C HT /ISO21809-3 14A-2
Compatible line coatings	FBE, AE*, Coal Tar, HDPUF*, PE	FBE, AE*, Coal Tar, PE, PP, TSA*
Soil stress restriction	None	None
Max operating temperature	65°C	80°C
Min preheat temperature	80°C	120°C
Recommended pipe preparation	SA2.5	SA2.5

Ordering information

HCS type products are available:

- as cut piece (pre-cut sleeve with separate closure patch)
- as a roll (closure patches to be ordered separately)

Select sleeve width that will overlap onto the mill-applied coating by 2 inches (50 mm) minimum on each side of the weld joint.

Product recommend thickness(mm): 1.8, 2.2, 2.5

Other product thickness (1.6~2.5mm) are available, please note when make order.

Product recommend width(inch): 18", 20", 24", 34"

Other product width (12"~34") are available, please note when make order.

Standard Ordering Options

Cut piece		* Roll form(closure patches to be ordered separately)	
Example:	HCS 60-24X18/2.5	Example	HCS 80-20x100f/2.2-RL
60	Operating temperature 65°C (140°F)	80	Operating temperature 80°C
24	Outside pipe diameter in inch	100f	Roll length in feet
18	Sleeve width in inch	20"	Roll width in inch
/2.5	Sleeve thickness in mm	2.2	Roll thickness in mm
		-RL	Supplied in rolls

Sleeve cut lengths and appropriate closure patch widths depend on the pipe size and product construction, see application table.

For proper product installation, see installation instruction.

Product properties:

Property	Test Method	HCS 60	HCS 80
Backing			
Tensile strength	ASTM D-638	22MPa	22MPa
Elongation	ASTM D-638	550%	550%
Hardness, Shore D	ASTM D-2240	52	52
Dielectric strength at 23°C	ASTM D-149	30KV/mm	30KV/mm
Moisture absorption	ASTM D-570	0.05%	0.05%
Adhesive			
Softening point	ASTM E-28	102°C	120°C
Lap shear	ASTM D-1002	2.30N/mm ²	2.8N/mm ²
Sleeve			
Peel strength to Steel @23°C @T _{max} to PE @23°C @T _{max}	ASTM D-1000	85N/cm 12N/cm 80N/cm 12N/cm	80N/cm 8N/cm 80N/cm 10N/cm
Cathodic disbondment	ASTM G-42, 30days @23°C _{max}	8mm	8mm
Hot water immersion	ASTM D-870, 120 days @ T _{max}	no delamination, no blisters or water ingress	no delamination, no blisters or water ingress
Resistance to thermal ageing (100d/100°C) Elongation at break E ₁₀₀ /E ₇₀	EN 12068	1.08	1.08
Low temperature flexibility	ASTM D-2671-C	-25°C	-25°C
Impact resistance	EN 12068, class C	>15J no holiday	>15J no holiday
Penetration resistance	ASTM G-17, EN 12068, Class C	no holidays @10KV >0.6mm @ 65°C	no holidays @10 KV >0.6mm @ 80°C

Service Life: More than 30 years

Normal Packing: Carton (Maximum 45kg).

Storage Condition:

- To ensure maximum performance, store CHERAY POLYMER products in a dry, ventilated area.
- Keep products sealed in original cartons and avoid exposure to direct sunlight, rain, snow, dust or other adverse environmental elements.
- Avoid prolonged storage at temperatures above 40°C or below -20°C.
- Product installation should be done in accordance with local health and safety regulations.

Shelf Life: 2 years, under correct storage condition.

HMS 80 Mastic Heat Shrinkable Sleeve

2-layer Girth weld field joint coatings

Description

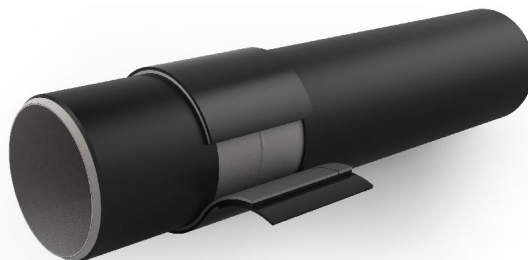
HMS 80 Mastic heat shrinkable sleeve 2-layer system are engineered for ready-to-fit assembly for the corrosion protection of field girth weld joints in water supply or gas distribution and transmission networks, especially for use in low & middle shear or low stress environments in moderate climates.

Construction: Two-layer system

First layer: Visco-elastic butyl based adhesive

Second layer: Radiation cross-linked, high density polyethylene backing with **TIP** (Temperature Indicator Pattern)

HMS100 is compatible with most commonly used steel pipe coatings and is used for offshore and onshore girth weld protection or to recoat (rehabilitate) long pipe sections and large radius bends. The installation is carried out directly on the cleaned and pre-heated pipe surface without any primer required. During installation, the heat shrinkable sleeve is wrapped around and shrunk to form a tight fit around the joint. During recovery, the adhesive softens and flows to form a perfect bond with the pipe surface providing protection against corrosion. The radiation cross-linked outer layer forms a tough barrier against mechanical damage and moisture transmission.



Features & Benefits

- Excellent visco-elastic adhesive allow for lower installation pre-heat temperature and super bonding to coating, offer fully resistant to shear forces induced by soil and thermal movements.
- Superior cathodic disbondment and offers the optimum barrier long term protection against corrosion.
- Easy field installation, saves time & cost, HMS100 can be installed quickly and easily in most environments.
- Pattern backing provides a "heating temperature indicator" for application of heat. Ensures correct application heating.
- Covers a wide range of operating temperature ratings from -45°C to 100°C, offers a solution for nearly every application.

Application guide		Product thickness		
	HMS 80	Pipeline diameter (inch)	Mastic sealant (mm)	Total thickness as supplied (mm)
Performance	EN 12068, ISO 21809-3 14A-2			
Compatible line coatings	PE, FBE, Coal Tar, AE	3-10	0.8	1.8
Soil stress restriction	None	12-30	1.2	2.2
Max operating temperature	80°C, For offshore applications Max. operating temperature 100°C	Above pipe diameter DN750 (30") in high shear and high stress environments, the use of HCS 100, HSS80C is recommended.		
Min preheat temperature	50 °C			
Recommended pipe preparation	St2.0 ~ St3.0 or SA2 ½			

Standard ordering options

Cut piece		* Roll form (closure patches to be ordered separately)	
Example:	HMS 80-12X18/1.8	Example	HMS 80-20x100f/2.2-RL
30	Operating temperature up to 80°C	100	Operating temperature up to 80°C
12	Outside pipe diameter in inch	100f	Roll length in feet
18	Sleeve width in inch	20	Roll width in inch
/1.8	Sleeve thickness in mm	2.2	Roll thickness in mm
		-RL	Supplied in rolls

Sleeve cut lengths and appropriate closure patch widths depend on the pipe size and product construction, see application table.
For proper product installation, see installation instruction.

Product properties:

Physical Properties	Test Method	HMS80 Typical Value
PE backing		
Tensile strength at 23°C	NACE PRO0303/ ASTM D-638	22 MPa
Elongation to break	NACE PRO0303/ASTM D-638	600%
Adhesive		
Ring and Ball Softening point of adhesive	ASTM E-28	125°C
Installed Field Joint Coating system		
Holiday detection at 5Kv/mm+5Kv Max.15kV	ISO 21809-3 Annex C	No Holidays
Impact resistance (holiday detection at 5 kV/mm +5 kV, max. 15kV after recovery)	ISO 21809-3 Annex D	> 7 J/mm
Indentation Resistance (holiday detection at 5 kV/mm +5 kV, max.15kV after recovery) @ Max Operating Temperature	ISO 21809-3 Annex E	10 N/mm ² >0.6mm
Residual thickness		
Cathodic Disbondment 28 days @23°C	ISO 21809-3 Annex G	3 mm
@ 80°C		8.5 mm
Peel strength to Steel pipe surface and plant applied coating @ 23°C, 10 mm/min	ISO 21809 -3 Annex H	>1N/mm
Peel strength to Steel pipe surface and plant applied coating @ 80°C, 10mm/min	ISO 21809 -3 Annex H	0.1 N/mm
Peel strength at 10 mm/min to pipe surface and to polyolefin plant coating after 100-day hot-water immersion test at Tmax limited	ISO 21809 -3 Annex H & I	0.80
Lap shear strength at 10 mm/min @23°C	ISO 21809 -3 Annex J	0.1 Mpa
@80°C		0.01 Mpa
Thermal Ageing Resistance (aged at Tmax + 20 °C)		After 100 days, @ 100°C,
--Elongation to break E ₁₀₀ /E ₇₀	ISO 21809-3, Annex M	0.85
--Peel strength to pipe surface P ₁₀₀ /P ₇₀		0.85
Ultraviolet resistance	EN12068 Class C80 UV	Pass
Low temperature flexibility	ASTM D-2671-C	-30°C

Service Life: More than 30 years

Normal Packing: Carton (Maximum 45kg).

Storage Condition:

- To ensure maximum performance, store CHERAY POLYMER products in a dry, ventilated area.
- Keep products sealed in original cartons and avoid exposure to direct sunlight, rain, snow, dust or other adverse environmental elements.
- Avoid prolonged storage at temperatures above 40°C or below -20°C.
- Product installation should be done in accordance with local health and safety regulations.

Shelf Life: 2 years, under correct storage condition.

HMS65 Mastic Heat Shrinkable Sleeve

2-layer Girth weld field joint coatings

Description

HMS65 Mastic heat shrinkable sleeve 2-layer system are engineered for ready-to-fit assembly for the corrosion protection of field girth weld joints in water supply or gas distribution and transmission networks, especially for use in low & middle shear or low stress environments in moderate climates.

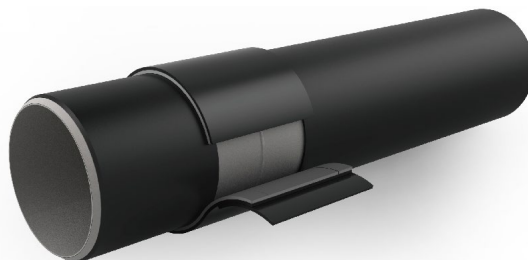
Construction: Two-layer system

First layer: Low preheat middle shear strength half-rigid mastic sealant

Second layer: Radiation cross-linked, high density polyethylene backing with **TIP** (Temperature Indicator Pattern)

HMS is compatible with standard pipe coatings, can also be used for coating bare, replacement pipe sections and large radius bends. The system is designed to be applied with minimum preheating and is ideal for large diameter water pipe.

(Above pipe diameter DN750 (30")) in high shear and high stress environments, the use of HCS 65, HSS 60/80 is recommended).



Features & Benefits

- Excellent mastic adhesive allow for lower installation pre-heat temperature and super bonding to coating, offer fully resistant to shear forces induced by soil and thermal movements.
- Superior cathodic disbondment and offers the optimum barrier long term protection against corrosion.
- Easy field installation, saves time & cost, HMS can be installed quickly and easily in most environments.
- Pattern backing provides a "heating temperature indicator" for application of heat. Ensures correct application heating.
- Covers a wide range of operating temperature ratings from -45°C to 65°C, offers a solution for nearly every application.

Application guide		Product thickness		
	HMS 65	Pipeline diameter (inch)	Mastic sealant (mm)	Total thickness as supplied (mm)
Performance	EN 12068 Class C50 ISO21809-3 14A-1			
Compatible line coatings	PE, FBE, Coal Tar, AE	3-10	0.8	1.8
Soil stress restriction	None	12-30	1.2	2.2
Max operating temperature	70°C	Above pipe diameter DN750 (30") in high shear and high stress environments, the use of HCS 65, HSS 60/80 is recommended.		
Min preheat temperature	50°C			
Recommended pipe preparation	St2.0 ~ St3.0			

Standard ordering options

Cut piece		* Roll form(closure patches to be ordered separately)	
Example:	HMS65-12X18/1.8	Example	HMS 65-20x100f/2.2-RL
65	Operating temperature up to 80°C	65	Operating temperature up to 80°C
12	Outside pipe diameter in inch	100f	Roll length in feet
18	Sleeve width in inch	20	Roll width in inch
/1.8	Sleeve thickness in mm	2.2	Roll thickness in mm
		-RL	Supplied in rolls

Sleeve cut lengths and appropriate closure patch widths depend on the pipe size and product construction, see application table.

For proper product installation, see installation instruction.

Product properties:

Physical Properties	Test Method	HMS65 Typical Value
PE backing		
Tensile strength at 23°C	NACE PRO0303/ ASTM D-638	22 Mpa
Elongation to break	NACE PRO0303/ASTM D-638	600%
Adhesive		
Ring and Ball Softening point of adhesive	ASTM E-28	95°C
Installed Field Joint Coating system		
Holiday detection at 5Kv/mm+5Kv Max.15kV	ISO 21809-3 Annex C	No Holidays
Impact resistance (holiday detection at 5 kV/mm +5 kV, max. 15kV after recovery)	ISO 21809-3 Annex D	> 7 J/mm
Indentation Resistance (holiday detection at 5 kV/mm +5 kV, max.15kV after recovery) @ Max Operating Temperature Residual thickness	ISO 21809-3 Annex E	10 N/mm ² >0.6mm
Cathodic Disbondment 28 days @23°C @70°C	ISO 21809-3 Annex G	3 mm 8.5 mm
Peel strength to Steel pipe surface and plant applied coating @ 23°C, 10 mm/min	ISO 21809 -3 Annex H	>1N/mm
Peel strength to Steel pipe surface and plant applied coating @70°C, 10mm/min	ISO 21809 -3 Annex H	0.1 N/mm
Peel strength at 10 mm/min to pipe surface and to polyolefin plant coating after 100-day hot-water immersion test at Tmax limited	ISO 21809 -3 Annex H & I	0.80
Lap shear strength at 10 mm/min @23°C @70°C	ISO 21809 -3 Annex J	0.1 Mpa 0.01 Mpa
Thermal Ageing Resistance (aged at Tmax + 20 °C) --Elongation to break E ₁₀₀ /E ₇₀ --Peel strength to pipe surface P ₁₀₀ /P ₇₀	ISO 21809-3, Annex M	After 100 days, @ 100°C, 0.85 0.85
Ultraviolet resistance	EN12068 Class C80 UV	Pass
Low temperature flexibility	ASTM D-2671-C	-30°C

Service Life: More than 30 years

Normal Packing: Carton (Maximum 45kg).

Storage Condition:

- To ensure maximum performance, store CHERAY POLYMER products in a dry, ventilated area.
- Keep products sealed in original cartons and avoid exposure to direct sunlight, rain, snow, dust or other adverse environmental elements.
- Avoid prolonged storage at temperatures above 40°C or below -20°C.
- Product installation should be done in accordance with local health and safety regulations.

Shelf Life: 2 years, under correct storage condition.

HIS-50 Ultra-low temperature super-tough heat shrinkable sleeve

2PE insulation pipeline joint coating & mainline coating

Description

HIS-50 Ultra-low temperature Heat Shrinkable wraparound Sleeve is designed 2-layer joint coating for corrosion protection of girth weld joint buried and exposed insulation steel pipes, it is combined with radiation cross-linked high strength super-tough polyethylene backing and special type of rubber adhesive with endure high temperature and ultra-low temperature feature, HIS-50 can be constructed under ambient temperature low to -50°C.

When installing the HIS-50, use propane torch flame simply remove moisture on the surface of insulation layer or outside coating, wrap HIS-50 heat shrinkable sleeve on the insulation pipe, ensure the overlap width is more than 100mm between sleeve and coating. Uniformly heat HIS-50 by torch, the sleeve uniform shrunk on radial direction by heating, at the same time, special adhesive layer melt, uniformly cover and fill the surface of pipeline. After cooling to ambient temperature, cross-linked high strength super-tough polyethylene backing form a outside shield to resist the mechanical damage and moisture immerse, special adhesive layer can form strong physical bonding with PE backing and insulation coating, build a continue ,tight waterproof and anti-corrosion system, it effectively resist soil stress, water pressure, chemical corrosion and mold erosion. HIS-50 is applied for field girth weld joint coating for insulation pipeline with PE factory coating, the whole insulation pipeline outside coating and outside coating repairing, it can be used one joint overlap another joint to continuously protect the whole pipe.



Construction: Two-layer system

First layer: Endure High & Ultra-low temperature rubber elastic sealant

Second layer: Radiation cross-linked, high strength super tough polyethylene backing with **TIP** (Temperature Indicator Pattern)

Application guide	HIS-50	Ordering information	
Performance	EN12068	HIS-50 apply for 2PE insulation pipeline joint coating & mainline coating, normal specification is as follow,	Example: HIS-50— 500 -2.5(15)
Compatible line coatings	PE, PP	Backing thickness mm 1.0, 1.2, 1.5	HIS-50 –sleeve can be constructed in -50°C ambient temperature
Soil stress restrictions	None	Adhesive thickness mm 0.8, 1.0, 1.5, 2.0	500 - sleeve width, mm
Max operating temperature	100°C	Sleeve width mm 500, 550, 600, 800	2.5 - sleeve total thickness, mm
Environment temperature range	-50°C ~70°C	pipe diameter DN300-DN2200	Closure patch is included

Product properties

Property	Test method	Typical Value HIS-50
Backing		
Tensile strength	ASTM D-638	22MPa
Elongation	ASTM D-638	500%
Thermal ageing 150°C 21d elongation	ASTM D-638	400%
Hardness, Shore D	ASTM D-2240	52
Shrink force	ASTM D-638, 150°C	43psi
Dielectric voltage breakdown	ASTM D-149	28KV/mm
Moisture absorption	ASTM D-570	0.05%
Adhesive		
Softening point	ASTM E-28	142°C
Lap shear	ASTM D-1002	1.0N/mm ²
Sleeve		
Peel to PE coating	ASTM D-1000	75N/cm
Hot water immersion	ASTM D-870, 120 days @50°C	no delamination, no blisters or water ingress
Low temperature flexibility	ASTM D-2671-C	-45°C
Impact resistance	EN 12068, class C	15J no holiday

CP-1 Epoxy Primer(Epoxy Resin Adhesive) & Applicator kit

Description

CP-1 Epoxy Primer (Epoxy Resin Adhesive) is specially formulated 100% volume solids (free-solvent) 2 component epoxy, designed for corrosion protection of steel pipeline. CP-1 Epoxy Primer provides excellent anticorrosion properties to resist cathodic disbondment, impact and abrasion of sand and stone.

CP-1 Epoxy Primer (Epoxy Resin Adhesive) also show excellent electric insulation properties during pipeline running in various environments and can be used independently with durable protection against various chemical attacks, also can be used with heat shrinkable sleeve to provide last protection of metal pipeline.

CP-1 Epoxy Primer can be applied by paintbrush, applicator pad and roller.



Application guide

Recommended use:

As an epoxy primer (Epoxy Resin Adhesive) in a 3 layer polyolefin coating system for superior corrosion protection of field welded joints of steel pipes. The CP -1 needs to be applied onto the steel surface and onto the line coating if need, when this line coating is PE, PP, FBE or CTE.

Application

1. Prepare the pipe surface as recommended in the product application guide
2. Pour curing agent into base as per mixing ratio. Stir the mixture for approximately 1 minute to ensure a homogeneous mixture.
3. Carefully apply mixed epoxy primer as indicated in the product application guide.

Properties

Trade name	CP-1 Epoxy Primer (Epoxy Resin Adhesive)
Description	CP-1 primer is a specially formulated 100% volume solids (solvent-less) 2 component epoxy.
Service Temp.	Up to 130°C
Color	Black
Solids	100% (by volume), 100% (by weight)
Mix Ratio	(by volume) : 3.5 parts of base (part A) to 1 part of hardener (part B) (by weight) : 100 parts of base (part A) to 16 part of hardener (part B)
Typical coverage	2.5 sq.m/litre. This coverage is based on 200-250 microns average thickness.
Specific gravity	Base: 1.65; Hardener: 1
Typical thickness	200-250 microns
Pot life at 23°C	>25min
Shelf Life	3 years 5°C~40°C (73°F, 163°F), out of direct sunlight. Shelf life will be less at higher temperatures.
Application	1. Prepare the pipe surface as recommended in the product application guide. 2. Pour hardener into base as per mixing ratio. Stir the mixture for approximately 1 minute to ensure a homogeneous mixture. 3. Carefully apply mixed epoxy primer as indicated in the product application guide.

Ordering information:



Epoxy primer kit: CP-1-KIT-150-0.75sqm

This kit includes pre-dozed Epoxy resin and Curing agent, a stirring stick, applicator pad.

This kit contains sufficient primer for 0.75sqm of coverage.

Bulk Epoxy:

Epoxy : CP-1-PART-A-18L-25KG

Curing agent: CP-1-PART-B-18L-19KG

Always order in multiples of 2 pails of part A by 1 pail of part B

For accessories to apply epoxy primer see Application table.

CRP Repair Patch, Melting Stick, Mastic Sealant Filler

Steel Pipeline factory Coating Repair Materials

Description

CRP is specifically designed for seal and protection of damaged pipeline or filling damaged hole (voids) of coating pipeline. CRP consists of repair patch, Melting Stick and mastic sealant filler.

CRP Repair patch Construction: 2-layer

First layer: Copolymer hot melting adhesive

Second layer: Radiation-cross-linked, high density polyethylene (unexpanded)

Melting Stick is made of hot melt adhesive same with first layer of CRP

In general, CRP is available for repairing damage less than 150mm×150mm in size.

If damaged area of coating pipeline is larger than 150mm×150mm, Heat shrinkable wraparound sleeve (or HWT wraparound tape) is recommended.

Installation is done with gas torches. To repair a damaged area, installers round out, roughen, clean and preheat the area and apply the HMAS to fill up the holiday. CRP, cut to size, is positioned onto the treated area and heated. During heating, the adhesive softens and flows to form a tight bond with the backing. The bond strength builds up during cool-down and is fully retained after repairing completion.

Features & Benefits

CRP provides excellent abrasion resistance, inert to acids and alkalis and solvents, moisture and corrosion resistance. The hot melting adhesive stick is supplied as rods for sealing or repairing smaller damage hole or crack (up to 10mm×10mm), which provides excellent adhesion (to PE, FBE and steel) and moisture resistance.



Application guide	CRP	Melt Stick	Mastic Sealant filler
Performance	EN 12068 Class C, HT UV	EN 12068 Class C, HT UV	EN 12068 Class C, HT UV
Compatible line coatings	PE, FBE, Coal Tar	PE, FBE, Coal Tar	PE, FBE, Coal Tar
Soil stress restriction	None	None	None
Max operating temperature	80°C (176°F)	80°C (176°F)	80°C (176°F)
Min preheat temperature	70°C (158°F)	70°C (158°F)	70°C (158°F)

Specification

Standard Ordering Options

The following specifications are available:		Example:	CRP 150×150-2.2 HMAS 20/250
Thickness mm	1.8, 2.2, 2.5	CRP	Coating repair patch for protection corrosion of damage pipeline
Patch width(piece) mm	100, 150, 200, 250	150×150	The size of CRP, mm×mm
Patch length(piece) mm	100, 150, 200, 250	2.2	CRP thickness, mm
Hot melting adhesive stick	Diameter 20mm, length 250mm or Diameter 25mm, length 300mm	HMAS	Hot melting adhesive stick
		20/250	Stick diameter 20mm, length 250mm
CRP could also be ordered in bulk roll			

Product properties:

Property	Test Method	Typical Value CRP
PE Melt Stick		
Dielectric strength at 23°C	IEC 243	15KV/mm
Tensile strength at 23°C	ISO R-527	6.0 MPa
Elongation	ASTM D-638	550%
Hardness, 23°C	ISO R-858	35 Shore D
Impact strength 23°C	EN12068 Class C	15 Joules, pass
Holiday detection at 23°C	DIN30672	Pass 5kV + 5kV/mm
PE Repair Patch		
Adhesive Softening Point	ASTM E-28	115°C
Adhesive water absorption at 23°C	ASTM D-570	0.1%
Adhesive peel strength to PE coating at 23°C	EN12068	1.5 N/mm
Adhesive Shear Strength at 23°C	EN12068	0.1N/mm ²
Tensile strength of backing at 23°C	ASTM D-638	20 MPa
Ultimate elongation of backing at 23°C	ASTM D-638	500 %
Dielectric strength of backing at 23°C	ASTM D-149	15kV/mm

PP Repair Patch, Melting Stick

PP factory Coating Repair Materials

Description

PP repair patch is specifically designed for seal and protection of damaged pipeline or filling damaged hole (voids) of coating pipeline. CRP consists of repair patch, Melting Stick and mastic sealant filler.

PP Repair patch is available for sealing and protection of damaged 3-Layer PP Coating upto 150mmx150mm size damages.

First layer: Copolymer hot melting adhesive

Second layer: Irradiated cross-linked, polypropylene (unexpanded)

Melting Stick is made of hot melt adhesive same with first layer of PP repair patch, as rods for small repairs, holidays and cracks upto 10x 10mm.



Application guide	PP Repair Patch	PP Repair Stick
Performance	DIN 30672 Class C	DIN 30672, Class C
Compatible line coatings	PP, FBE, Coal Tar	PP, FBE, Coal Tar
Soil stress restriction	None	None
Max operating temperature	120°C	120°C (176°F)
Min installation temperature	70°C (158°F)	70°C (158°F)

Product properties:

Property	Test Method	Typical Value
PE Melt Stick		
Impact strength 23°C	DIN 30672 Class C	15 Joules, pass
Holiday detection	DIN 30672	Pass 5kV + 5kV/mm
Penetration at 23°C	DIN 30672 Class C	Pass
PE Repair Patch		
Backing		
Tensile strength of backing at 23°C	ASTM D-638	33 MPa
Ultimate elongation of backing at 23°C	ASTM D-638	650 %
Specific Gravity	ASTM D792	0.93 g/mm ³
Hardness	ASTM D2240	56 Shore D
Hot modulus at 100% Elongation	ASTM D-638	0.2
Dielectric strength of backing at 23°C	ASTM D-149	30 kV/mm
Water Absorption 95°C ,24Hr	ASTM D-570	0.1%
Elongation at break after heat ageing @150 4 weeks	ASTM D-638	550%
Weathering followed by elongation at break	ASTM D-638 P638	450%
Adhesive		
Melting point 10°C/min ramp	ASTM D3418	155°C
Shear Strength	ASTM D-1002	
120°C		30 N/cm ²
23°C		580N/cm ²
120°C	EN12068	30N/cm ²
Repair Tape as installed		
Peel strength to PP 100mm/min	DIN 30672	100 N/cm

Mastic Adhesive Tape

For filling and Sealing the Gap in FJC system and CP system

Description

Mastic high temperature adhesive for fill and seal the gap of FJC system edge, Specially between the field joint casing and factory coating to fill the gap and sealing, or for CP system gap filling and sealing.

Features & Benefits

- Excellent visco-elastic adhesive allow for lower installation pre-heat temperature and super bonding to coating, offer fully resistant to shear forces induced by soil and thermal movements.
- Superior cathodic disbondment and offers the optimum barrier long term protection against corrosion.
- The performance of adhesive meet the ISO21809-3

Application guide		Ordering Guide	
Performance	ISO 21809-3	Example:	MAT 80-30/50/1.8 -RL
Compatible line coatings	PE, FBE	80	Operating temperature up to 80°C
Soil stress restriction	None	30	Length 30m, length can be customized
Max operating temperature	80°C, For offshore applications max.operating temperature 100°C	50	Tape width 50mm, 100mm\150mm\200mm is optioned
Min preheat temperature	50 °C	/1.8	Adhesive thickness in mm
Recommended pipe preparation	St2.0 ~ St3.0 or SA2 ½	RL	In rolls

Product properties:

Physical Properties	Test Method	MAT Typical Value
Ring and Ball Softening point of adhesive	ASTM E-28	155°C
Cathodic Disbondment 28 days @23°C @ 80°C	ISO 21809-3 Annex G	1.5mm 5.0 mm
Peel strength to Steel pipe surface and plant applied coating @ 23°C, 10 mm/min	ISO 21809 -3 Annex H	1.5N/mm
Peel strength to Steel pipe surface and plant applied coating @ 80°C, 10mm/min	ISO 21809 -3 Annex H	0.13 N/mm
Lap shear strength at 10 mm/min @23°C @80°C	ISO 21809 -3 Annex J	0.14 Mpa 0.012 Mpa
Thermal Ageing Resistance (aged at Tmax + 20 °C) --Elongation to break E ₁₀₀ /E ₇₀ --Peel strength to pipe surface P ₁₀₀ /P ₇₀	ISO 21809-3, Annex M	After 100 days, @ 100°C, 0.85 0.85
Low temperature flexibility	ASTM D-2671-C	-25°C

Service Life: More than 30 years

Normal Packing: Carton (Maximum 45kg).

Storage Condition:

- To ensure maximum performance, store CHERAY POLYMER products in a dry, ventilated area.
- Keep products sealed in original cartons and avoid exposure to direct sunlight, rain, snow, dust or other adverse environmental elements.
- Avoid prolonged storage at temperatures above 40°C or below -20°C.
- Product installation should be done in accordance with local health and safety regulations.

Shelf Life: 2 years, under correct storage condition.

Visco-Elastic Tape VET-H70

Visco-elastic adhesive base on reinforced carrier wrap coating system

Description

VET-H70 is a corrosion preventing wrap material adhering extremely well to steel and plant applied pipeline coating like PP, Liquid Epoxies and FBE. VET-H70 is a cold-applied, prefabricated wrap coating, consisting of a modified and reinforced non-crosslinked Polyisobutene adhesive applied onto a polyethylene carrier film. VET-H70 has a set of unique properties like cold-flow into all irregularities of the substrate and self-healing of the complete coating system. It is very suitable for use on new pipeline anticorrosion and repair of old pipeline, including overhead, buried and immersed pipes in onshore, pipes and risers in offshore. Due to its liquid nature it is especially suitable for anti-corrosion of special-shaped parts, including flanges, manholes, valves, tee, etc. VET-H70 must be used with external protective tape like polymeric outerwrap or heat shrinkable tape. This improves impact and indentation resistance of the coating system.



Features & Benefits

- Saves time, surface preparation no need blasting and preheating, without applying epoxy primer
- Super bonding to Steel, and any coating material include PE, PP, and FBE
- Superior cathodic disbondment offers the optimum barrier long term protection against corrosion
- Self-healing ability when slightly damaged due to cold-flow properties
- No flowing and dripping on maximum operation temperature
- Impermeable to water and oxygen
- Resistance to many chemicals like water, salts, acids, polar solvents, etc
- Long shelf-life

Application Guide	VET-H70	Ordering Information	
Executive standard	ISO 21809-3 Type 13A & 13B	Example:	VET-H70-10X100/1.8
Compatible line coatings	PE, PP, FBE, PU, Coal tar, Bitumen	70	Max Operating temperature 70°C
Soil stress restrictions	None	10	Roll length m
Operating temperature	-50°C~+70°C	100	Width of Tape mm
Short term temperature	+90°C	1.8	Normal thickness mm

Product Properties

Product properties	Test Method	VET H70 Value
Color	/	Green
Minimum thickness	ISO 21809-3 Annex B	> 1.8mm
Temperature Range	/	Operation temp: - 50°C ~ 70°C Short term max.: 90°C During application: 0°C to +50°C
Density	ISO 1183	1.4 – 1.6g/cm ³

Glass transition temp.	ISO 11357-2	$\leq -65^{\circ}\text{C}$
Crystallization temp.	ISO 11357-3	No evidence of crystallization
Holiday detection	ISO 21809-3 Annex C	No holiday at 15KV
Drip resistance	ISO 21809-3 Annex K	Tested 72h @+100°C: No dripping of compound
Peel strength	ISO 21809-3 Annex H	@-45°C $\geq 5\text{N/mm}$ cohesive separation mode @23°C $\geq 0.2\text{N/mm}$ cohesive separation mode @70°C $\geq 0.02\text{N/mm}$ cohesive separation mode
Peel test after thermal ageing for 100 days at 90°C	ISO 21809-3 Annex H, M.3	@23°C $\geq 0.2\text{N/mm}$ cohesive separation mode
Peel test after hot water immersion for 100 days at 90°C	ISO 21809-3 Annex H, I	@23°C $\geq 0.2\text{N/mm}$ cohesive separation mode
Lap shear resistance	ISO 21809-3 Annex J	@70°C $\geq 0.002\text{N/mm}^2$ @23°C $\geq 0.02\text{N/mm}^2$ @-45°C $\geq 1\text{N/mm}^2$
Specific electrical insulation resistance	ISO 21809-3 Annex F	$R_{s100} > 10^8 \Omega \cdot \text{m}^2$ $R_{s100}/R_{s70} > 0.8$
Chemical resistance HCl 10% NaOH 10% NaCl 3%	/	Excellent No deterioration, 90 days at 23°C No corrosion, 90 days at 23°C

Application instruction

Specification	VET-H70 conventional products with width of 100mm-300mm, can be customized according to demand
Shelf Life	24 months with proper storage
Application	Atmospheric condition: humidity < 85%RH, $T_{\text{Dew point}} + 3^{\circ}\text{C} < T_{\text{support}}$ (1) Surface preparation: Minimum requirement for surface preparation is St2 according to ISO8501-1. Roughness profiles is not essential for adhesion but in case abrasive blast cleaning techniques are used, the preferred roughness in less than 50um. (2) Filling in the irregular shape(suitable for irregular parts): Fill the Visco-Elastic Filler Paste to the irregular part of the pipe until the surface is flat. (3) Wrapping: Keep appropriate tension when wrapping the tape, press the edge and lap part of the tape with your hand or tools. The length of the lap between the tape and the original anti-corrosive layer shall not be less than 50mm, the width of the lap between the tape shall not be less than 20mm, the overlap of wrap between consecutive rolls is not be less than 50mm. (4) Quality inspection: The appearance of VET-H70 must look smooth, lap uniform, no bubbles, folds and damages. The coated surface must be checked for holidays using a high voltage holiday detector at 10KV. (5) Application of outer wrap materials: Install the corresponding outer protective tape according to the design requirements. Note: When taking out the tape from the box, please pay attention to avoid sand scratches, water or ash.
Remark	Technical information is constantly updated, please contact your sales manager for the latest product information

Viscoelastic Tape VET-HT95

Visco-elastic adhesive base on reinforced carrier wrap coating system

Description

VET-HT95 is a high temperature corrosion preventing wrap material adhering extremely well to steel and plant applied pipeline coating like PP, Liquid Epoxies and FBE. VET-HT95 is a cold-applied, prefabricated wrap coating, consisting of a modified and reinforced non-crosslinked Polyisobutene adhesive applied onto a polyethylene carrier film. VET-HT95 has a set of unique properties like cold-flow into all irregularities of the substrate and self-healing of the complete coating system. It is very suitable for use on new pipeline anticorrosion and repair of old pipeline, including overhead, buried and immersed pipes in onshore, pipes and risers in offshore. Due to its liquid nature it is especially suitable for anti-corrosion of special-shaped parts, including flanges, manholes, valves, tee, etc. VET-HT95 must be used with external protective tape like polymeric outerwrap or heat shrinkable tape. This improves impact and indentation resistance of the coating system.



Features & Benefits

- Saves time, surface preparation no need blasting and preheating, without applying epoxy primer
- Super bonding to Steel, and any coating material include PE, PP, and FBE
- Superior cathodic disbondment offers the optimum barrier long term protection against corrosion
- Self-healing ability when slightly damaged due to cold-flow properties
- No flowing and dripping on maximum operation temperature
- Impermeable to water and oxygen
- Resistance to many chemicals like water, salts, acids, polar solvents, etc
- Long shelf-life

Application Guide	VET-HT95	Ordering Information	
Executive standard	ISO 21809-3 Type 13A & 13B	Example:	VET-HT95-10X100/1.8
Compatible line coatings	PE, PP, FBE, PU, Coal tar, Bitumen	95	Operating temperature 95°C
Soil stress restrictions	None	10	Roll length m
Max operating temperature	95°C	100	Width of Tape mm
Environment temperature range	-50°C ~70°C	1.8	Normal thickness mm

Product Properties

Product properties	Test Method	VET HT95 Value
Color	/	Green
Minimum thickness	ISO 21809-3 Annex B	> 1.8mm
Density	ISO 1183	1.4 – 1.6g/cm ³
Temperature Range	/	Operation temp: - 50°C ~ 95°C Short term max.: 115°C During application: 0°C to +50°C
Glass transition temp.	ISO 11357-2	≤-65°C

Crystallization temp.	ISO 11357-3	No evidence of crystallization
Holiday detection	ISO 21809-3 Annex C	No holiday at 15KV
Drip resistance	ISO 21809-3 Annex K	Tested 72h @+120°C: No dripping of compound
Peel strength	ISO 21809-3 Annex H	@23°C ≥0.2N/mm cohesive separation mode @95°C ≥0.05N/mm cohesive separation mode
Peel test after thermal ageing for 100 days at 115°C	ISO 21809-3 Annex H, M.3	@23°C ≥0.2N/mm cohesive separation mode
Peel test after hot water immersion for 100 days at 95°C	ISO 21809-3 Annex H, I	@23°C ≥0.2N/mm cohesive separation mode
Lap shear resistance	ISO 21809-3 Annex J	@23°C ≥0.02N/mm ² @-45°C ≥1N/mm ²
Specific electrical insulation resistance	ISO 21809-3 Annex F	$R_{s100} > 10^8 \Omega \cdot m^2$ $R_{s100}/R_{s70} > 0.8$
Chemical resistance HCl 10% NaOH 10% NaCl 3%	/	Excellent No deterioration, 90 days at 23°C No corrosion, 90 days at 23°C

Application instruction

Specification	VET-HT95 conventional products with width of 100mm-300mm, can be customized according to demand
Shelf Life	24 months with proper storage
Application	Atmospheric condition: humidity<85%RH, $T_{Dew\ point} + 3^{\circ}C < T_{support}$: (6) Surface preparation: Minimum requirement for surface preparation is St2 according to ISO8501-1. Roughness profiles is not essential for adhesion but in case abrasive blast cleaning techniques are used, the preferred roughness in less than 50um. (7) Filling in the irregular shape(suitable for irregular parts): Fill the Visco-Elastic Filler Paste to the irregular part of the pipe until the surface is flat. (8) Wrapping: Keep appropriate tension when wrapping the tape, press the edge and lap part of the tape with your hand or tools. The length of the lap between the tape and the original anti-corrosive layer shall not be less than 50mm, the width of the lap between the tape shall not be less than 20mm, the overlap of wrap between consecutive rolls is bot be less than 50mm. (9) Quality inspection: The appearance of VET-HT95 must look smooth, lap uniform, no bubbles, folds and damages. The coated surface must be checked for holidays using a high voltage holiday detector at 10KV. (10) Application of outer wrap materials: Install the corresponding outer protective tape according to the design requirements. Note: When taking out the tape from the box, please pay attention to avoid sand scratches, water or ash.
Remark	Technical information is constantly updated, please contact your sales manager for the latest product information

Visco-elastic Filler Paste

Description

Visco-Elastic Filler Paste is a corrosion preventing moulding paste that is used for filling of voids and levelling of irregular surfaces prior to application of visco-elastic tape. Due to its high tack it adheres extremely well to steel and factory applied pipeline coatings like PE, PP and FBE.

Visco-Elastic Filler Paste is a non-toxic, cold-applied, and visco-elastic moulding paste, based on a compound consisting of non-crystalline, low-viscosity, non-crosslinked, non-reactive Polyisobutene.

Visco-Elastic Filler Paste is viscous at the indicated operating temperatures. Due to its liquid nature it has a set of unique properties like cold-flow into all irregularities of the substrate and self-healing of the complete coating system. The compound does not cure and is unable to build up internal stress. Visco-Elastic Filler Paste is fully resistant to water and has a very low gas- and water vapour permeability.

Visco-Elastic Filler Paste requires an additional flexible mechanical protective layer like polymeric outerwrap or heat shrinkable tape. This improves impact and indentation resistance of the coating system and supports the self- healing ability of small damages like dents and cuts.

Features & Benefits

Features

- Controlled cold flow providing permanent inflow into the finest pores of the substrate
- Conforms to irregular shapes
- Low surface tension; adheres on many types of dry substrates at a molecular level
- Inert to ageing and weathering
- No osmosis or underfilm migration of moisture
- No cathodic disbondment
- Environmentally friendly, no health and safety hazards to humans
- Resistant to many chemicals like water, salts, acids, alkalis, polar solvents, etc.

Benefits

- Easy to apply
- Easy to control application
- Surface tolerant: no blasting techniques required, wire brushing is sufficient (ISO 8501-1: St 2)
- Can be moulded onto various types of irregular shaped objects
- Cathodic Protection (CP) of steel structures is not affected
- Guaranteed performance

Application

Flanges: For protection against external corrosion and shaping of connection flanges, insulation flanges and blind flanges.

Valves: For protection against external corrosion and shaping of valves.

Irregular shaped parts: For protection against external corrosion and shaping of manhole covers, bolts & nuts, etc.

Cad-welds: For protection against external corrosion of welded CP-wire connections on underground pipelines (Pin-brazes)

and underground steel structures protected by CP.

Pipe coating repairs: For protection against external corrosion and as filler for pipeline coating defects of e.g. 3LPE coated pipelines, prior to application of consecutive mechanical protective coating.

Specification

Name	Paste-50	Paste-H70	Paste-HT95
Temperature ranges	-50°C~+50°C	-50°C~+70°C	-50°C~+95°C
Short term temperature	+70°C	+90°C	+115°C
Packaging	1kg/bag	1kg/bag	1kg/bag
Note: We can be customized according to demand.			

Product properties

Visco-elastic Filler Paste	
Colour	Green
Density	1.4~1.6 g/cm ³
Water absorption	≤0.03%(ASTM D570)
Glass transition temp.	≤-65°C
Crystallization temp.	No evidence of crystallization(Tested range -100°C to + 190°C)
Drip resistance	Tested 72h @T _{max} +20°C: No dripping of compound
Adhesion test Tested	Test at -45°C, 23°C, and T _{max} : Coating leaves a film of corrosion preventative compound on the substrate.
hot water immersion for 120 days at T _{max}	Coating no bubbling, no peeling, no corrosion phenomenon

Information

Shelf Life	24 months with proper storage
Documentation	Extensive information is available on our website. Application instruction and other documentation can be obtained by contacting our head office, from our local distributor or by sending email to sales@cheray.com.cn
Remark	Technical information is constantly updated, please contact your sales manager for the latest product information.

**CERT****DIN-DVGW type examination certificate****DIN-DVGW-Baumusterprüfzertifikat****NG-5180DO0491**Registration Number
Registriernummer

Field of Application <i>Anwendungsbereich</i>	products of gas supply <i>Produkte der Gasversorgung</i>
Owner of Certificate <i>Zertifikatinhaber</i>	Cheray Polymer Co. N° 15, Mingyang Rd, Beiqiao Hope IZ, CN-215144 Xiangcheng District, Suzhou City
Distributor <i>Vertreiber</i>	Cheray Polymer Co. N° 15, Mingyang Rd, Beiqiao Hope IZ, CN-215144 Xiangcheng District, Suzhou City
Product Category <i>Produktart</i>	Greasing and sealing materials: Protection tape against corrosion (5180)
Product description <i>Produktbezeichnung</i>	heat-shrinkable wraparound sleeve with Primer
Model <i>Modell</i>	HSS80
Test reports <i>Prüfberichte</i>	Type testing: 22-00137-AB01 from 15.11.2023 (EBI)
Test basis <i>Prüfgrundlagen</i>	DIN EN 12068 (01.03.1999)

Date of Expiry / File No. 15.11.2028 / 24-0026-GNE
Ablaufdatum / Aktenzeichen

25.01.2024 Fi A-1/2

Date, Issued by, Sheet, Head of Certification Body
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A-2/2

NG-5180DO0491

Type Typ	Technical Data Technische Daten	Remarks Bemerkungen
HSS80	Stress class: C HT 80 UV Permanent operating temperature: max +80 °C Designation according to standard: coating EN 12068-C HT 80 UV	
Hints of Utilization / Remarks Verwendungshinweise / Bemerkungen		
Application: warm applied corrosion protection coating on wet epoxy primer		



DVGW type examination certificate

DVGW-Baumusterprüfzertifikat

DG-5181DQ0552

 Registration Number
 Registriernummer

Field of Application <i>Anwendungsbereich</i>	products of gas supply <i>Produkte der Gasversorgung</i>
Owner of Certificate <i>Zertifikatinhaber</i>	Cheray Polymer Co. N° 15, Mingyang Rd, Beiqiao Hope IZ, CN-215144 Xiangcheng District, Suzhou City
Distributor <i>Vertreiber</i>	Cheray Polymer Co. N° 15, Mingyang Rd, Beiqiao Hope IZ, CN-215144 Xiangcheng District, Suzhou City
Product Category <i>Produktart</i>	Greasing and sealing materials: Coatings for steel tubes (5181)
Product description <i>Produktbezeichnung</i>	Corrosion protection coating
Model <i>Modell</i>	HSS80
Test reports <i>Prüfberichte</i>	Type testing: 24-00168-AB01 from 29.04.2025 (EBI)
Test basis <i>Prüfgrundlagen</i>	DIN EN ISO 21809-3 (01.09.2020)
Date of Expiry / File No. <i>Ablaufdatum / Aktenzeichen</i>	29.04.2030 / 25-0414-GNE

70025-04-A-DE

09.09.2025 Bd A-1/2

 Date, Issued by, Sheet, Head of Certification Body
 Datum, Bearbeiter, Blatt, Leiter der Zertifizierungsstelle


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A-2/2

DG-5181DQ0552

Type Typ	Technical Data Technische Daten	Remarks Bemerkungen
HSS80	Permanent operating temperature: 80 °C Class: 14B-2	

The logo consists of a stylized flame or leaf-like symbol above the text "DVGW" in a bold, sans-serif font. Below "DVGW" is a horizontal line, and underneath that line is the word "CERT" in a similar bold, sans-serif font.


CERT

DIN-DVGW type examination certificate

DIN-DVGW-Baumusterprüfzertifikat

NG-5181DO0492

 Registration Number
 Registriernummer

Field of Application <i>Anwendungsbereich</i>	products of gas supply <i>Produkte der Gasversorgung</i>
Owner of Certificate <i>Zertifikatinhaber</i>	Cheray Polymer Co. N° 15, Mingyang Rd, Beiqiao Hope IZ, CN-215144 Xiangcheng District, Suzhou City
Distributor <i>Vertreiber</i>	Cheray Polymer Co. N° 15, Mingyang Rd, Beiqiao Hope IZ, CN-215144 Xiangcheng District, Suzhou City
Product Category <i>Produktart</i>	Greasing and sealing materials: Coatings for steel tubes (5181)
Product description <i>Produktbezeichnung</i>	Corrosion protection coating
Model <i>Modell</i>	HMS80
Test reports <i>Prüfberichte</i>	Type testing: 22-00138-AB01 from 15.11.2023 (EBI)
Test basis <i>Prüfgrundlagen</i>	DIN EN ISO 21809-3 (01.09.2020)

Date of Expiry / File No. 15.11.2028 / 24-0026-GNE
Ablaufdatum / Aktenzeichen

25.01.2024 Fi A-1/2

 Date, Issued by, Sheet, Head of Certification Body
 Datum, Bearbeiter, Blatt, Leiter der Zertifizierungsstelle

 DVGW CERT GmbH
 Zertifizierungsstelle

 Josef-Wirmer-Str. 1-3
 53123 Bonn

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 Fax +49 228 91 88 - 993

 www.dvgw-cert.com
 info@dvgw-cert.com

A-2/2

NG-5181DO0492

Type Typ	Technical Data Technische Daten	Remarks Bemerkungen
HMS80	Permanent operating temperature: max. +80 °C Designation according to standard: coating DIN EN ISO 21809-3 Type: 14-A2	
Hints of Utilization / Remarks Verwendungshinweise / Bemerkungen		
Application: warm applied corrosion protection coating on wet epoxy primer		

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DV-5180BT0507

Typ <i>type</i>	Technische Daten <i>technical data</i>	Bemerkungen <i>remarks</i>
HSS 80	Belastungsklasse: C HT 80 UV Dauerbetriebstemperatur: max. +80 °C Normbezeichnung: Umhüllung EN 12068-C HT 80 UV	
Verwendungshinweise / Bemerkungen <i>hints of utilization / remarks</i>		
Anwendung: warm aufzubringende Korrosionsschutzumhüllung auf Epoxid-Primer		

Certificate of ISO 9001:2015



CERTIFICATE OF REGISTRATION

This is to certify that the
Quality Management System of
CHERAY POLYMER CO.

Audit Address: 15 Mingyang Road, Hope Industrial Park, Beiqiao Street, Xiangcheng District, Suzhou City, Jiangsu Province
Registered Address: Hope Industrial Park, Beiqiao Street, Xiangcheng District, Suzhou
Unified Social Credit Code: 91320507670994518H
Registration Number: 41723QJ20070R2S

Has been audited to conform to
GB/T19001-2016/ISO9001:2015

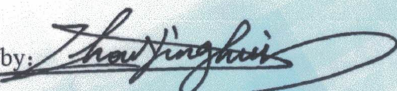
For the whole process of
For the whole process of R&D, production and sales of Polymer materials for pipeline anti-corrosion (including pipeline anti-corrosion heat shrinkable Tape (sleeve), solvent-free epoxy primer, pressure-sensitive adhesive heat-shrinkable tape (Sleeve), viscoelastic material, anti-corrosion tape (cold applied tape), new type of reinforced composite materials, epoxy glass fiber reinforced plastic)

Has been audited to conform to
GB/T19001-2016/ISO9001:2015, GB/T50430-2017

For the whole process of
For the Whole process of Construction of waterproof, anti-corrosion and thermal insulation engineering within the scope of qualification

Date Of Initial Registration: 12-13-2019
Date Of This Certificate: 11-28-2023
Certificate Expiry: (Subject to the company maintaining its system to the required standard) 12-12-2026

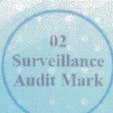
During validity period of the certificate a surveillance audit should be carried out once within each 12 months. The label should be pasted on specified position of right side of the certificate then it is valid.
It is valid within the term of validity of all the administration and qualification stipulated in accordance with the regulation of P.R.C. Please visit www.lcciso.com or CNCA website (www.cnca.gov.cn) for this certificate's validity status.

Shanghai Linying Certification Co.,Ltd. Issued by: 

Add: Room 906, Floor 9, Block A, Building 1, No. 800, Naxian Road,
China(Shanghai)Pilot Free Trade Zone, Shanghai, China



01
Surveillance
Audit Mark



02
Surveillance
Audit Mark



CERTIFIED BY
LCC
ISO 9001:2015



LINYING
CERTIFICATION

Certificate of ISO 14001:2015



CERTIFICATE OF REGISTRATION

This is to certify that the
Environment Management System of
CHERAY POLYMER CO.

Audit Address: 15 Mingyang Road, Hope Industrial Park, Beiqiao Street, Xiangcheng District, Suzhou City, Jiangsu Province

Registered Address: Hope Industrial Park, Beiqiao Street, Xiangcheng District, Suzhou

Unified Social Credit Code: 91320507670994518H

Registration Number: 41723E10383R2S

Has been audited to conform to
GB/T24001-2016/ISO14001:2015
For the whole process of

For the whole process of R&D, production and sales of Polymer materials for pipeline anti-corrosion (including pipeline anti-corrosion heat shrinkable Tape (sleeve), solvent-free epoxy primer, pressure-sensitive adhesive heat-shrinkable tape (Sleeve), viscoelastic material, anti-corrosion tape (cold applied tape), new type of reinforced composite materials, epoxy glass fiber reinforced plastic); relevant environmental management activities involved in the construction of waterproof, anti-corrosion and thermal insulation engineering within the scope of qualification

Date Of Initial Registration:

12-05-2019

Date Of This Certificate:

11-28-2023

Certificate Expiry:

(Subject to the company maintaining its system to

the required standard)

12-04-2026

During validity period of the certificate a surveillance audit should be carried out once within each

12 months. The label should be pasted on specified position of right side of the certificate then it is valid.

It is valid within the term of validity of all the administration and qualification stipulated in accordance with the regulation of P.R.C. Please visit www.lcciso.com or CNCA website (www.cnca.gov.cn) for this certificate's validity status.

Shanghai Linying Certification Co., Ltd.

Issued by:

Add: Room 906, Floor 9, Block A, Building 1, No. 800, Naxian Road,
China (Shanghai) Pilot Free Trade Zone, Shanghai, China



Certificate of ISO45001-2018



CERTIFICATE OF REGISTRATION

This is to certify that the
Occupational Health and Safety Management System of
CHERAY POLYMER CO.

Audit Address: 15 Mingyang Road, Hope Industrial Park, Beiqiao Street, Xiangcheng District, Suzhou City, Jiangsu Province

Registered Address: Hope Industrial Park, Beiqiao Street, Xiangcheng District, Suzhou

Unified Social Credit Code: 91320507670994518H

Registration Number: 41723O20249R1S

Has been audited to conform to
GB/T45001-2020/ISO 45001:2018

For the whole process of

Polymer materials for pipeline anticorrosion (including pipeline anticorrosion heat shrink belt (sleeve), solvent-free epoxy primer, pressure sensitive adhesive heat shrink belt (sleeve), Research and development, production and sales of viscoelastic body, anticorrosive tape (cold-wrapped tape), new reinforcement composite materials, epoxy FRP; Related occupational health and safety management activities involved in the construction of waterproof, anticorrosive and thermal insulation projects within the scope of qualification

Date Of Initial Registration: 12-04-2020

Date Of This Certificate: 11-28-2023

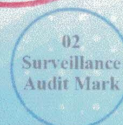
Certificate Expiry: (Subject to the company maintaining its system to the required standard) 12-03-2026

During validity period of the certificate a surveillance audit should be carried out once within each 12 months. The label should be pasted on specified position of right side of the certificate then it is valid. It is valid within the term of validity of all the administration and qualification stipulated in accordance with the regulation of P.R.C. Please visit www.lcciso.com or CNCA website (www.cnca.gov.cn) for this certificate's validity status.

Shanghai Linying Certification Co.,Ltd.

Issued by:

Add: Room 906, Floor 9, Block A, Building 1, No. 800, Naxian Road,
China(Shanghai)Pilot Free Trade Zone, Shanghai, China



Certificate of Green Supply Chain

					
Certificate Of Registration					
CHERAY POLYMER CO. Ltd					
Uniform Social Credit Code: 91320507670994518H					
Registered Add.: Hope Industrial Park, Beiqiao Street, Xiangcheng District, Suzhou Zip Code: 215144 Production/Business Add.: No.15, Mingyang Rd, Hope Industrial Park, Beiqiao Street, Xiangcheng District, Suzhou, Jiangsu Province, China Zip Code: 215144					
Its Green Supply Chain Management System is in line with:					
GB/T 33635-2017 Green manufacturing—Green supply chain management in manufacturing enterprises-Guideline					
The coverage is as follows:					
<i>for the whole process of R&D and production of polymer materials for pipeline anti-corrosion (including pipeline anti-corrosion heat shrinkable tape(sleeve), solvent-free epoxy primer, pressure-sensitive adhesive heat shrinkable tape(sleeve), viscoelastic material, anti-corrosion tape(cold applied tape), new type of reinforced composite materials, epoxy glass fiber reinforced plastic)</i>					
Organization code: ZZLH24LSGYL0001R0S Original Issued Date: 02-02-2024 Expiration Date: 01-02-2027					
<table border="1"><tr><td>Re-Certification logo</td><td>Re-Certification logo</td><td>Re-Certification logo</td></tr></table>			Re-Certification logo	Re-Certification logo	Re-Certification logo
Re-Certification logo	Re-Certification logo	Re-Certification logo			
NOTE: Since 02-02-2025 this certificate should be used together with annually supervision audit stamp. Specific information could be inquired on: www.zhongzai.net					
					
Issued By					
					
BEIJING ZZLH INSPECTION&CERTIFICATION LIMITED Add: 1612 room, Building 1, Greenland Central Square, Xinhua North Road, Tongzhou District, Beijing Tel: 010-57115252 E-mail: info@zhongzai.net Web: www.zhongzai.net This certificate information can be found on the official website of the CNCA. (http://www.cnca.gov.cn) and ZZLH website(http://www.zhongzai.net)					



CHERAY POLYMER

Pipeline Corrosion Protection Coatings

ADD: No.15 Mingyang Road, Hope Industrial Zone,
215144 Suzhou, China

TEL: +86-512-6275 9096

FAX: +86-512-6275 6796

E-mail: sales@cheray.com.cn

www.cheray-polymer.com