

INTERNAL COATING DECISION MAKING MATRIX WORKSHEET

For instructions view Paper ASME IPC2026-186429, or contact www.rapicuresolutions.com

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PROJECT REQUIREMENTS

Complete from operator/project requirements, integrity assessment, and planned installation conditions.

Project / Segment ID:	Pipe Diameter: ____ in.	Service: _____	Structural Repair Required?: ☐ Yes ☐ No	Required MAOP: ____ psi
Install Temperature: ____ °C	Max. Service Temperature: ____ °C	Outage: ____ hr	Chemistry Class: A / B / C / D / E / F	Installed-Cost Budget: \$ ____ / ft

Chemistry: A=sweet dry gas | B=wet gas/brine | C=sour wet gas/H₂S + brine | D=condensate/NGL/light hydrocarbons | E=crude/refined products | F=particulate/erosive flow

STEP 1. USE PRODUCT DATA AND SCORE PRODUCTS 1 & 2; STEP 2. ADD WEIGHTS; STEP 3. CALCULATE WEIGHTED SCORE; STEP 4. CALCULATE BASE SCORE; STEP 5. CALCULATE NORMALIZED SCORE; STEP 6. ADD PENALTIES; STEP 7. CALCULATE FINAL SCORE; STEP 8. RANK

Use product data sheets or other product-specific data. Enter the product value, then a 1-5 score from the scoring guide on Page 2. Weight from 0 to 1 based on importance to this project.

Column	A	B	C	D	E	F
Evaluation Factor	Weight	Maximum Possible Column A X 5	Product 1 Scores	Weighted Product 1 Column A x C	Product 2 Scores	Weighted Product 2 Column A x E
Product / Manufacturer						
Structural alignment						
Cure time / outage						
Chemistry compatibility						
Service-temperature margin						
Installation-temperature margin						
Adhesion - ASTM D4541						
Abrasion - ASTM D4060						
Barrier integrity						
Hydraulic impact						
Design-life evidence						
BASE SCORE Sum of Column C or E.						
Maximum Possible Score Sum of Column B.						
NORMALIZED BASE SCORE (Base Score / Maximum Possible Score) X 100						
TECHNICAL PENALTY if more than 1 multiply them to get the technical penalty total						
BUDGET PENALTY						
FINAL SCORE = normalized base score × all technical penalties × budget						
RANK						

PENALTIES AND FINAL RANKING

After scoring, check each applicable trigger. Multiply all triggered technical penalties together. Note chemistry "Caution" does not trigger a penalty.

TECHNICAL PENALTIES

Trigger	Penalty
☐ Structural mismatch	0.10
☐ Cure time > outage	0.10
☐ Temperature out of range	0.30
☐ Chemistry = No	0.20
☐ Required data unavailable	0.85

BUDGET PENALTY Installed cost ÷ project budget

Cost / Budget	Penalty
≤1.00	1.00
>1.00-1.20	0.90
>1.20-1.50	0.75
>1.50-2.00	0.50
>2.00	0.25

1-5 SCORING GUIDE

Use the product-specific value. Match it to the row below and enter the corresponding 1-5 score on Page 1. Higher score = better fit.

Factor	5	4	3	2	1
Structural alignment	Not required or qualified MAOP > required	—	Qualified MAOP = 80- 100% required	—	Qualified MAOP <80% required
Cure time / outage	≤0.25	0.26-0.49	0.50-0.80	0.81-1.00	>1.00
Chemistry	OK / acceptable / good	—	Caution	—	No / incompatible
Service-temp. margin	>10°C above required	5-10°C above	1-5°C above	At required limit	Outside validated range
Install-temp. margin	>10°C inside validated	5-10°C inside	1-5°C inside	At validated limit	Outside validated range
Adhesion - ASTM D4541	>15 MPa	11-15 MPa	6-10 MPa	4-<6 MPa	<4 MPa
Abrasion - ASTM D4060	<20 mg	20-49 mg	50-99 mg	100-200 mg	>200 mg
Water absorption	<0.10%	0.10-0.29%	0.30-0.69%	0.70-1.49%	≥1.50%
CH4 permeability	<1	1-3	4-10	11-25	>25
Hydraulic ΔP change	<-5%	-4.9 to +4.9%	+5 to +14.9%	+15 to +30%	>+30%
Design-life evidence	Multi-year validation and/or accelerated creep data	—	Limited validation / no accelerated-aging data	—	No validation / aging data

Barrier integrity: score water absorption and CH4 permeability separately; use the lower of the two scores on Page 1.; **CH4 permeability units:** (mL·mm)/(m²·bar·day).

SIPP INSTALLATION CHECK (NOT SCORED)

Confirm from supplier and installer procedures. Use these checks to identify practical installation issues that are not part of the numerical material score.

Requirement	Product A	Product B	Product C	Product D
Suitable / qualified for SIPP	☐	☐	☐	☐
Required surface preparation achievable	☐	☐	☐	☐
Moisture / condensation limits acceptable	☐	☐	☐	☐
Required spray / mix / cure equipment available	☐	☐	☐	☐

Data reminder: Use product-specific supplier/qualification values when available. If a required input cannot be provided, apply the "Required data unavailable" technical penalty on Page 1.