BRAD-CHEM 771

A concentrated semi - solid used to manufacture soft film corrosion preventive and de-watering fluids. Designed to provide indoor protection from several weeks up to a year, depending upon the environment.

Features / Benefits

- Can formulate a range of soft film protectants from the one concentrate
- Easy to blend with white spirits or petroleum distillate
- Enables the reduction of inventories
- Produces protectants with reproducible performance
- High tech protectants can be manufactured cost effectively
- Provides all round flexibility and optimum cost control for the production of solvent deposited soft film protectants

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Applications / Typical Treat Rates

Brad-Chem 771 is designed to be diluted with white spirits or other solvents to manufacture soft film temporary protectants.

2 – 12 month temporary protective	5 % w/w (in white spirits)
> 12 months temporary protective	10 % w/w (in white spirits)

Typical Properties

Appearance	Dark amber semi - solid
Flash Point PMCC (°C)	> 80
Melting Point (°C)	30 – 40
Specific Gravity @ 20°C	0.93 - 0.95
pH (aqueous dispersion)	6.0 – 6.5
Dry Film Thickness	ca. 0.45 µm
Solubility in Water	Insoluble

BRAD-CHEM 771

Pack Size

Available in 25 kg drums and 190 kg drums.

Note

The product is removed with solvents, e.g. kerosene, white spirit, alkaline de-greaser.

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SAFETY DATA SHEET

BRAD-CHEM 771 CONC

Issued: 27/09/2006

Revision No: 2

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IDENTIFICATION OF PRODUCT / COMPANY

Product name: BRAD-CHEM 771 CONC

Description of product: Temporary protectant concentrate

COMPOSITION / INFORMATION ON INGREDIENTS

HAZARD IDENTIFICATION

Main hazards: No Significant Hazard.

FIRST AID MEASURES (SYMPTOMS)

FIRST AID MEASURES (ACTION)

Skin contact: Drench the affected skin with running water for 10 minutes or longer if substance is still on skin.

Eye contact: Bathe the eye with running water for 15 minutes.

Ingestion: If conscious, give 1 pint of water to drink immediately. Transfer to hospital as soon as possible.

FIRE FIGHTING MEASURES

Extinguishing media: Dry chemical powder. Water spray. Carbon dioxide.

Protection of fire-fighters: Wear protective clothing to prevent contact with skin and eyes.

ACCIDENTAL RELEASE MEASURES

Personal precautions: Refer to section 8 of SDS for personal protection details.

Environmental precautions: Contain the spillage using bunding.

Clean-up procedures: Absorb into dry earth or sand. Wash the spillage site with large amounts of water.

HANDLING AND STORAGE

Handling requirements: Ensure there is sufficient ventilation of the area.

Storage conditions: Keep container tightly closed. Store in cool, well ventilated area.

EXPOSURE CONTROLS / PERSONAL PROTECTION

Hand protection: Protective gloves made of PVC.

Eye protection: Goggles. Ensure eye bath is to hand.

PHYSICAL AND CHEMICAL PROPERTIES

State: Wax

Colour: Red-brown

Odour: Characteristic odour

[cont...]

Viscosity: Highly viscous

Evaporation rate: Negligible

Solubility in water: Insoluble

Also soluble in: Most organic solvents.

10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions.

Materials to avoid: Strong oxidising agents.

11. TOXICOLOGICAL INFORMATION

12. ECOLOGICAL EFFECTS

Mobility: Insoluble in water.

DISPOSAL CONSIDERATIONS

Waste disposal: Arrange for collection by specialised disposal company.

Disposal of packaging Arrange for collection by specialised disposal company.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

14. TRANSPORT INFORMATION

ADR / RID

IMDG / IMO

IATA / ICAO

15. REGULATORY INFORMATION

Hazard symbols: No Significant Hazard.

Safety phrases: S24/25: Avoid contact with skin and eyes.

Note: The regulatory information given above only indicates the principal regulations specifically applicable to the product described in the safety data sheet. The user's attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

16. ADDITIONAL INFORMATION

Legal disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.

5.0 EXPERIMENTAL

Initially tensile tests were conducted on the wrapped 7-strand wire to determine the actual mechanical properties. Problems were encountered gripping these wire samples so duplicate tensile tests were conducted on the individual 1.3mm diameter strands.

The SCC testing was initially conducted on single strands of the wire as detailed below (phase 1 test):

Phase 1 Test:

Specimens:	2 x control specimens (1 as-received & 1 coated) in air. 2 x specimens (1 as-received & 1 coated) in HF only environment. 2 x specimens (1 as-received & 1 coated) in HF + rain-water environment.	
Environment:	1A (HF): 1B (Rainwater):	0.5%HF in de-ionised water 0.5%HF in rainwater
Specimen Type:	Single strand tensile	
Temperature :	+45 ±5°C	
Duration:	30-days	
Stress:	90% Actual yield stress (AYS)	

In order to generate stress corrosion cracks in the un-coated stressed wire further testing was undertaken using U-bend specimens, suspended in the vapour phase of the test solution, as shown in Figure 1. This test configuration was designed to promote the condensation of the evaporated solution on the stressed surface of the stressed wires which was considered to more representative of the service conditions than a full exposure test. The details for the U-bend tests conducted are presented below and on the following page.

Phase 2 Test:

Specimens:	2 x specimens (as-received & coated) in HF only environment. 2 x specimens (as-received & coated) in HF + rain-water environment.	
Environment:	2A(HF): 2B(Rainwater):	0.5%HF in de-ionised water 0.5%HF in rainwater
Specimen Type:	'U-bend' 7-strand-bent around 25mm diameter former.	
Temperature :	+50 ±5°C	
Duration:	30-day	

Phase 3 Test:

Specimens:	2 x specimens (as-received & coated) in HF + NaCl environment.
Environment:	1%HF + 5 wt% NaCl in de-ionised water
Specimen Type:	'U-bend' 7-strand-bent around 25mm diameter former.
Temperature :	+50 ±5°C
Duration:	30-days

Phase 4 Test

Specimens:	2 x specimens (as-received & coated) in HF + NaCl environment.
Environment:	2% HF + 5 wt% NaCl
Specimen Type:	'U-bend' 7-strand-bent around 25mm diameter former.
Temperature :	+50 ±5°C
Duration:	30-days

Phase 5 Test:

Specimens:	1 x specimen (as-received) in HF + NaCl environment.
Environment:	2% HF + 5 wt% NaCl
Specimen Type:	'U-bend' 7-strand-bent around 25mm diameter former.
Temperature :	+80 ±5°C (increased to 100°C for final 7-days)
Duration:	30-days

Phase 6 Test:

Specimens:	1 x specimen (as-received) in HF + NaCl environment.
Environment:	2% HF + 10 wt% NaCl
Specimen Type:	'U-bend' 7-strand-bent around 25mm diameter former.
Temperature :	+80 ±5°C
Duration:	30-days

Phase 7 Test:

Specimens:	2 x specimens (as-received) in HF + NaCl environment.
Environment:	2% HF + 10 wt% NaCl
Specimen Type:	'U-bend' 7-strand-bent around 25mm diameter former.
Temperature :	+90 ±5°C
Duration:	30-days

Phase 8 Test:

Specimens:	2 x specimens (coated) in HF + NaCl environment.
Environment:	2% HF + 10 wt% NaCl
Specimen Type:	'U-bend' 7-strand-bent around 25mm diameter former.
Temperature :	+90 ±5°C
Duration:	30-days

Following the termination of the exposure period after each test phase the specimens were visually examined at magnifications up to 40x.

6.0 RESULTS & DISCUSSION

6.1 Tensile Test Results.

The results from the two single strand tensile tests conducted are presented in Table I.

Table I
Tensile Test Results

Specimen	Load @0.2% Proof	Stress @0.2% Proof	Maximum Load	Ultimate tensile Stress
	kN	MPa	kN	MPa
1	2.44	1835	3.02	2272
2	2.34	1760	3.04	2290

6.2 Stress Corrosion Cracking (SCC) Results

The results from the SCC tests are summarised in Table II.

Table II
SCC Result Summary

Phase Test No	1A	1B	2A	2B	3A	3B	4A	4B	5	6	7	8
As-received	X	X	X	X	X		X		X	X	X	
Coated	X	X	X	X		X		X				X
Tensile	X	X										
U-bend			X	X	X	X	X	X	X	X	X	X
HF concentration (%)	0.5		0.5		1	1	2	2	2	2	2	2
Rainwater + HF (%)		0.5		0.5								
NaCl concentration (wt%)					5	5	5	5	5	10	10	10
Exposure (vapour/liquid)	v/l	v/l	v	v	v	v	v	v	v	v	v	v
Solution Temperature (°C)	45	45	45	45	50	50	50	50	80	80	90	90
Result (Pass-P / Fail-F)	P	P	P	P	P	P	P	P	P	P	F	P

It can be seen from results summary, shown in Table II, that the phase 7 test condition, comprising: 2% HF/10 wt% NaCl at a temperature of 90°C was the only environment which promoted the formation of SCC during the 30-day exposure period. The condition of the two specimens tested, following the 30-day exposure period, is shown in Figure2.
These specimens were similar in appearance to the failed rope (Shotton report ref: S700650).

Following the completion of the phase 7 test the test was repeated (phase 8) on specimens which had been coated with the "BRAD-CHEM 771" product. These duplicate specimens did not show evidence of SCC following the 30-day exposure period.

'LUSIONS

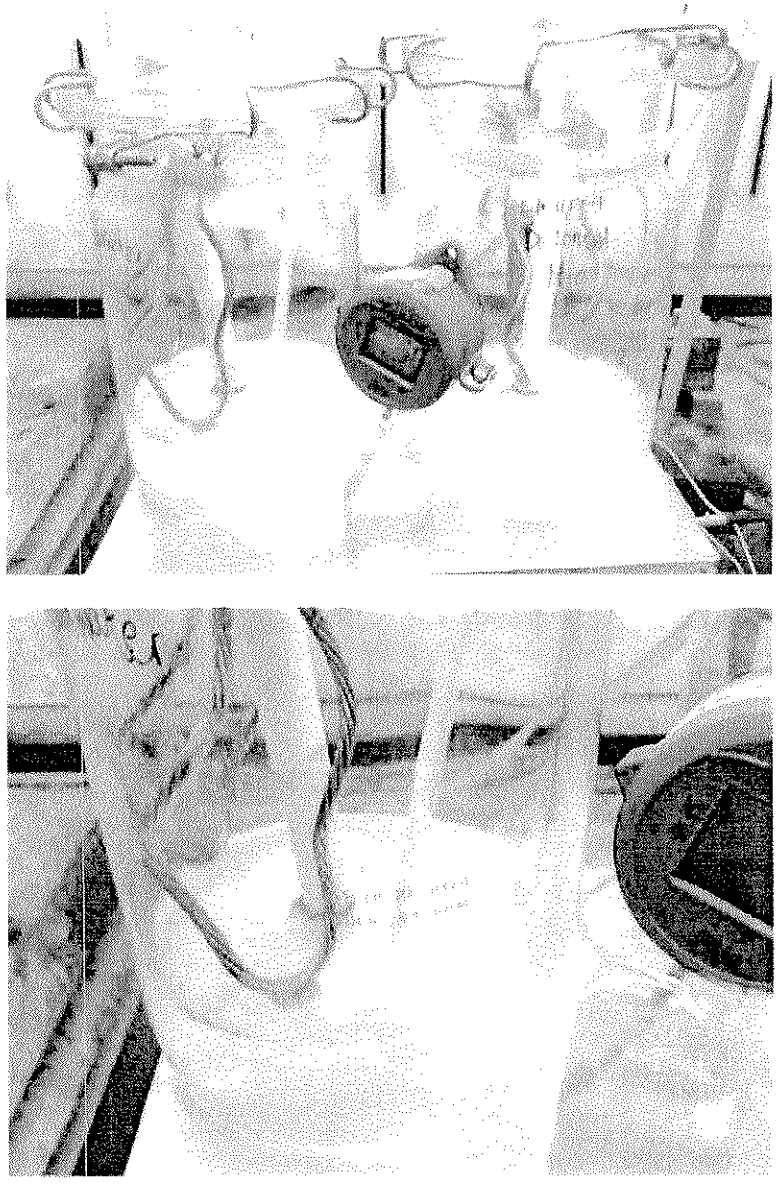
corrosion cracks (SCC) were induced on the stressed wire during the 30-posure period by exposing the wire to the vapour phase of a 2% HF / 10 'aCl solution held at >90degC.

3RAD-CHEM 771" coating was found to be effective in preventing the ion of SCC in the test environment which was known to promote SCC in :oated wire.

fectiveness of the "BRAD-CHEM 771" coating as a long term solution to evention of SCC initiation was not evaluated, however the product ation for the coating stated that it could be used as a temporary protection 2 – 12month period (depending on the concentration). Therefore in nation with planned inspection, re-application of the coating would be ed.

itial test conditions using the rainwater supplied and a low concentration (0.5%) at 45°C, which were intended to 'replicate' the reported service nment did not promote SCC cracking in the material during the 30-day ure period. The reason for this could have been due to the time of the test ure period or due to the actual service conditions being more aggressive at e rope surface than had been anticipated.

the test programme the HF concentration, salt (NaCl) concentration and rature were increased above the initial values. All three of these eters will influence the initiation of SCC, together with the applied stress



e 1 Photographs showing the test apparatus used for the U-bend tests.

(a)

(b)

Figure 2 Photomacrographs showing the condition of the two as-received specimens following the 30-day exposure period at +90degC in the 2% HF / 10 wt% NaCl 'vapour' environment.
Magnification: (a) Approximately 1x
(b) Approximately 2.5x

Supplier Contact Details

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