

WATER REGULATIONS ADVISORY SCHEME (WRAS).

**TESTING OF NON-METALLIC MATERIALS FOR USE WITH DRINKING  
WATER (BS 6920 : 2000)**

**AUDIT TEST REPORT**

Product : Loctite 770  
Report Reference : M 103258/A  
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Henkel Loctite Adhesives  
Watchmead Garden City  
Herts  
AL7 1JB

Report Date : 24<sup>th</sup> March 2004

**Executive Summary - samples of this product have been tested to the Audit Test requirements of the Water Regulations Advisory Scheme (WRAS)/BS 6920:2000 for use with Hot and Cold Water.**

***A copy of this report should be submitted to the Water Regulations Advisory Scheme (WRAS) for further advice concerning this product.  
Conformity with the Audit Test requirements of the WRAS will be confirmed by the Scheme.***

**NOTES.**

1. The results given in this report relate only to the items tested, and not necessarily to the bulk from which they were taken.
2. This test work was undertaken in the UKAS accredited Spencer House laboratory of Thames Water Utilities Ltd., UKAS registration number 0677, unless otherwise stated.
3. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.
4. This test report shall not be reproduced, except in full, without our prior written approval.



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**TESTING OF NON-METALLIC MATERIALS FOR USE WITH DRINKING WATER. WATER REGULATIONS ADVISORY SCHEME TESTS OF EFFECT ON WATER QUALITY (BS 6920:2000).**

**0. INTRODUCTION.**

The samples of the product referred to in this report have been tested in accordance with the methods of the Water Regulations Advisory Scheme (WRAS) Tests of Effect on Water Quality/BS 6920-2:2000 "Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water : Methods of Test". **The testing undertaken is in accordance with the Water Regulations Advisory Scheme (WRAS) letter ref CR/JC dated 25<sup>th</sup> November 2003.**

**1. TEST SAMPLES.**

General composition of product	Polyolefin Primer	
Trade name/designation	Loctite 770	
Material manufacturer	Loctite Ireland	
Date of manufacture/production	May 2003	
Production batch numbers	03EG 450	
Samples prepared by	WQC Staff	
Submitting organisation	Henkel Loctite Adhesives	
Date of receipt of test samples	1 <sup>st</sup> December 2003	
Method of packaging	Product Container	
Condition on receipt	Satisfactory	
Laboratory storage before test	Ambient temperature (21±4)°C	
Description of	test article	Coated Glass Panel
Appearance of a test article	colour surface finish opacity	Clear Smooth Transparent
Surface area of one article (mm <sup>2</sup> )	1000	
Number of articles to give a surface area of 1000mm <sup>2</sup>	1	
Calibration mark of the test vessel/container in litres	1	
Extraction temperature used for tests 2 & 6	(85±2)°C	



### 1.1 SITE APPLIED PRODUCTS.

Typical uses of the product	For use with Loctite cyanoacrylate adhesives.
Method of test sample preparation	Primer was brush applied onto sanded glass panels.
Mix ratio (mass : mass)	n/a
Number of coats used	One
Location of sample preparation	Spencer House Laboratory
Final curing (time and temperature)	0.5 hours at (7±2)°C

### 2. ODOUR & FLAVOUR OF WATER TEST

Temperature of extraction : (85±2)°C

Date test started : 20.01.04.

The extracts from the samples were compared with the procedural blank test waters by a panel of 3 testers. The following results were obtained for the test extracts.

Extract	Test water	Test	Descriptors	Threshold dilutions
<b>Sample 1</b>	Chlorine free	Odour	None	
		Flavour	None	<1
First	Chlorinated	Odour	None	
		Flavour	None	<1
Final	Chlorine free	Odour	--	
		Flavour	--	--
	Chlorinated	Odour	--	
		Flavour	--	--

**COMMENT.** On the basis of these results the samples of this product have been found **to conform** with the requirements of BS 6920-1 : Clause 4 when extracted at 85°C.

**4. GROWTH OF AQUATIC MICROORGANISMS.**

Temperature of test : (30±2)°C.

Date test started : 20.01.04.

Container	Mean Dissolved Oxygen Difference (MDOD) in mg/L
<b>Test product (weeks 5 to 7)</b>	<b>-0.2</b>
Negative reference (glass) (weeks 5 to 7)	0.1
Positive reference (wax) (weeks 5 to 7)	6.5
Special positive reference	n/a
Negative control - Mean dissolved oxygen concentration (weeks 5 to 7)	7.7

COMMENT. On the basis of these results the sample of this product has been found **to conform** with the requirements of BS 6920-1 : Clause 6.

At the end of this test the test pieces showed no changes in colour and appearance.



## 6. EXTRACTION OF METALS.

Temperature of extraction : (85±2)°C

Date test started : 20.01.04.

The results obtained for the first extract are given below -

Element	Unit	MAC	Reporting limit	Sample 1	Sample 2	Reagent blank
Aluminium	Al $\mu\text{g/L}$	200	15.0	166.0	131.0	<15.0
Antimony	Sb $\mu\text{g/L}$	10	0.5	0.8	0.9	0.9
Arsenic	As $\mu\text{g/L}$	50	0.8	<0.8	<0.8	<0.8
Barium	Ba $\mu\text{g/L}$	1000	4.0	4.0	<4.0	<4.0
Cadmium	Cd $\mu\text{g/L}$	5	0.5	<0.5	<0.5	<0.5
Chromium	Cr $\mu\text{g/L}$	50	5.0	<5.0	<5.0	<5.0
Iron	Fe $\mu\text{g/L}$	200	12.0	<12.0	<12.0	<12.0
Lead	Pb $\mu\text{g/L}$	50	0.5	<0.5	0.5	<0.5
Manganese	Mn $\mu\text{g/L}$	50	3.0	<3.0	<3.0	<3.0
Mercury	Hg $\mu\text{g/L}$	1	0.05	<0.05	<0.05	<0.05
Nickel	Ni $\mu\text{g/L}$	50	2.0	<2.0	<2.0	<2.0
Selenium	Se $\mu\text{g/L}$	10	0.5	<0.5	<0.5	<0.5
Silver	Ag $\mu\text{g/L}$	10	1.0	<1.0	<1.0	<1.0

### **Extract Analytical.**

The analysis of the extracts for these metals was undertaken in the Millharbour Laboratories of Thames Water, UKAS registration number 1258.

*Mercury, arsenic, selenium, antimony, silver and lead* - inductively coupled plasma mass spectrometry [method code 407].

*Aluminium, barium, cadmium, chromium, iron, manganese, and nickel* - inductively coupled plasma optical emission spectrometry [method code 385].

*Analytical Control Data* - these two techniques are in continuous use for analysis of drinking water metals; all of these techniques are fully validated to the requirements of "A Manual on Analytical Quality Control for the Water Industry" (NS 30) and the requirements laid down by the Drinking Water Inspectorate. Each technique has a comprehensive AQC protocol including control solutions and spike recovery testing with each batch of samples for analysis; full details available upon request.

**COMMENT.** On the basis of these results the samples of this product have been found **to conform** with the requirements of BS 6920-1 : Clause 8 when extracted at 85°C.

**NOTE.** In the Extraction of Metals Test the concentration of Antimony found in the reagent blank exceeded the limit of detection for this element. After investigation it was concluded, however, that the test was valid and that the results obtained for the product do conform with the requirements for this test.

**CONCLUSIONS.**

**The samples of this product have been tested in accordance with the Audit Test requirements of the Water Regulations Advisory Scheme (WRAS) for use with hot (up to 85°C) and cold water.**

***A copy of this report should be submitted to the Water Regulations Advisory Scheme (WRAS) for further advice concerning this product.***

NOTE : materials and products intended for use by a public water supply company in the preparation or conveyance of water may need to satisfy more comprehensive toxicological requirements as set specified by the Drinking Water Inspectorate. These additional requirements are necessary to ensure legal compliance with Regulation 25 of the Water Supply (Water Quality) Regulations 1989.

**NO OTHER TESTS WERE UNDERTAKEN ON THIS PRODUCT.**

*NOTES -*

1. The results specified in this report relate to the samples submitted for evaluation and not necessarily to the bulk from which they were taken. Any changes in the nature or source of ingredients and the process of manufacture or application could affect the suitability of the product for use in contact with drinking water.
2. We would draw to your attention that reports issued by the accredited test laboratories do not of themselves constitute approval by the Water Regulations Advisory Scheme (WRAS) or the test laboratory. Only a letter from the Scheme, citing a Directory Reference Number, can be regarded as indicating approval.



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