

The nominal pass/fail mark for these tests are 200mls and by establishing such a standard manufacturers have been encouraged to produce garments of improved design.

This is most noticeable by studying the results of a recent series of leak tests of four helicopter immersion suits for Shell UK Exploration and Production.

The Project consisted of 8 subjects wearing in turn four different suits whilst carrying out a 20 minute swim test and a simulated helicopter underwater escape, thus producing 64 separate leak test results.

Water Ingress During 20 Minute Swim Test

	A	B	C	D
	14	60	96	28
	78	74	914	78
	102	92	1114	80
	186	106	1450	88
	188	110	1648	146
	192	154	1748	284
	206	212	1796	292
	740	352	2382	422
Mean	213	145	1398	177
SD	224	96.5	691	139

From the above results it can be seen that suit Type C (the in-service suit) had a totally unacceptable leak rate. Indeed such a leak rate represents a loss of initial insulation of between 40% - 50% (Allen, Higenbottam and Redman 1984). As the maintenance of adequate insulation is a significant factor in the survival equation, leaks of the magnitude of Suit C above will significantly decrease the survival expectations for survivors from the hypothermia viewpoint. Suits A, B and C have been designed to meet the specification requiring no greater leak than 200mls and in most cases these suits achieve this acceptable figure.

33 A new Immersible thermal manikin

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The Nova Scotia Research Foundation Corporation, under contract to the Cord Group Ltd. of Dartmouth, Nova Scotia, has developed an immersible thermal manikin test system for use in the contract testing of thermal protective clothing. The clothing can be anything from diving and survival suits to basic outdoor wear. The system is computer based and so can complete tests and produce ready-to-read reports in a minimum of time. A basic description of hardware and software is presented, along with a discussion of some operational experience with the system.

34 Effects of laundering on the thermal insulation of clothing

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Most studies on the thermal insulation of clothing have been done with new, unwashed clothing. At the Institute of Occupational Health the effects of wear and laundering on the insulation of cold protective clothing have been studied and how material thickness and garment shrinkage change in relation to insulation has been determined.