

Abstract Submitted
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Failure above and below the elastic limit in AD995 NEIL BOURNE,
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— There is an ongoing interest in identifying inexpensive armour materials for use
in protection of personnel and vehicles. The response of AD995 under shock loading
is one of the materials most extensively investigated. Over recent years, workers
have reported failure occurring in various polycrystalline ceramics behind the shock
front. This phenomenon has been investigated using embedded stress sensors and
a recovery technique that has allowed observation of the microstructure above and
below the HEL and these results are brought together here to explain the observed
behaviour. The failure front velocity is found to change with the applied stress,
in particular it slows markedly as the HEL is exceeded. The evidence in the mi-
crostructure shows the response below HEL is dominated by intergranular failure
whilst above HEL the response dominated by plasticity in grains (including twin-
ning), which alters failure characteristics.

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