

NATO UNCLASSIFIED  
**NORTH ATLANTIC TREATY ORGANIZATION**  
**ORGANISATION DU TRAITE DE L'ATLANTIQUE NORD**

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MAS/200-LAND/2836  
1 July 1996

To : See MAS Distribution List No. 2

Subject : STANAG 2836 LAND (EDITION 3) - REMOVABLE PAINTS FOR CAMOUFLAGE

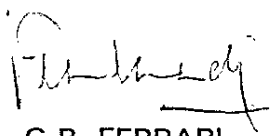
References : a. MAS(ARMY)(76)395 dated 27 September 1976 (Edition 2)  
b. AC/225-D/1314 dated 15 September 1994 (Edition 3) (1st Draft)

Enclosure : STANAG 2836 (Edition 3)

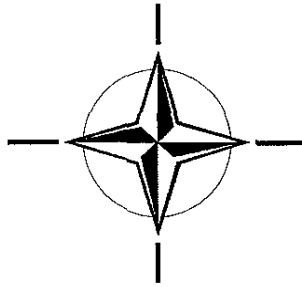
1. The enclosed NATO Standardization Agreement which has been ratified by nations as reflected in page iii is promulgated herewith.
2. The references listed above are to be destroyed in accordance with local document destruction procedures.
3. AAP-4 should be amended to reflect the latest status of the STANAG.

ACTION BY NATIONAL STAFFS

4. National staffs are requested to examine page iii of the STANAG and if they have not already done so, to advise the Defence Support Division, IS, through their national delegation as appropriate of their intention regarding its ratification and implementation.

  
G.B. FERRARI  
Major-General, ITAF  
Chairman, MAS

**NORTH ATLANTIC TREATY ORGANIZATION  
(NATO)**



**MILITARY AGENCY FOR STANDARDIZATION  
(MAS)**

**STANDARDIZATION AGREEMENT  
(STANAG)**

SUBJECT: REMOVABLE PAINTS FOR CAMOUFLAGE

Promulgated on 1 July 1996

A handwritten signature in dark ink, appearing to read 'G.B. Ferrari', is written over the printed name.

G.B. FERRARI  
Major-General, ITAF  
Chairman, MAS

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(Edition 3)

RECORD OF AMENDMENTS

No.	Reference/date of amendment	Date entered	Signature

EXPLANATORY NOTES

AGREEMENT

1. This NATO Standardization Agreement (STANAG) is promulgated by the Chairman MAS under the authority vested in him by the NATO Military Committee.
2. No departure may be made from the agreement without consultation with the tasking authority. Nations may propose changes at any time to the tasking authority where they will be processed in the same manner as the original agreement.
3. Ratifying nations have agreed that national orders, manuals and instructions implementing this STANAG will include a reference to the STANAG number for purposes of identification.

DEFINITIONS

4. Ratification is "In NATO Standardization, the fulfilment by which a member nation formally accepts, with or without reservation, the content of a Standardization Agreement" (AAP-6).
5. Implementation is "In NATO Standardization, the fulfilment by a member nation of its obligations as specified in a Standardization Agreement" (AAP-6).
6. Reservation is "In NATO Standardization, the stated qualification by a member nation that describes the part of a Standardization Agreement that it will not implement or will implement only with limitations"(AAP-6).

RATIFICATION, IMPLEMENTATION AND RESERVATIONS

7. Page iii gives the details of ratification and implementation of this agreement. If no details are shown it signifies that the nation has not yet notified the tasking authority of its intentions. Page iv (and subsequent) gives details of reservations and proprietary rights that have been stated.

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(Edition 3)

NAVY/ARMY/AIR

NATO STANDARDIZATION AGREEMENT  
(STANAG)

REMOVABLE PAINTS FOR CAMOUFLAGE

Annexes: A. RELATED DOCUMENTS  
B. PHYSICAL PROPERTIES

Related documents: See Annex A.

AIM

1. The aim of this agreement is to define, for NATO forces, the minimum quality level for easily removable, temporary camouflage paints.

AGREEMENT

2. Participating nations agree that the specifications for removable paints for camouflage will define the minimum quality level that may be demanded.

3. Any specification prepared by a member nation shall comply with the minimum requirements indicated by this STANAG, but could include, in addition to the characteristics and/or tests mentioned in Annex A, more stringent quality requirements and additional tests intended to improve the performance of the products.

GENERAL

4. Removable camouflage paints are intended for use on top of other paints/coatings on military or commandeered civilian materiel. The appropriate use of removable camouflage paints shall induce a quick, temporary change of signature into one adapted to actual environments.

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5. The colours used in removable camouflage paint shall comply with the spectral and colorimetric specifications given by AEP-31.

6. The removable paint, which may be in the form of a powder emulsifiable in water, a ready-made water emulsion or a composition with solvent, shall form films of alternative types:

- a. Removable with water, with or without additives.
- b. Removable with White Spirit or alcohol.

7. The dry film of type A must have a good adhesion to the substrate even when exposed to frost, hail and scrubbing from vegetation (deciduous or coniferous) for a period of 1 month, desirably 3 months.

8. After drying and curing the type A film must resist snow and rain for at least 1 month without significant running off. Type B film should resist rain and sea water for at least 3 months.

9. Paint film type A must be removable with water containing moderately alkaline detergents and high pressure water spraying, with or without light scrubbing.

10. Paint film type B must be removable with White Spirit with low aromatic content, respectively with ethyl alcohol.

**TECHNICAL SPECIFICATIONS**

11. The physical properties are given in Annex B.

**APPLICATION METHODS**

12. The paint must be satisfactorily applicable by brush, roller or spray provided that ambient temperature, materiel surface temperature and paint temperature all are between 1 °C and +40 °C (water based paints), respectively -10 °C and +40 °C (solvent based paints).

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HEALTH PROTECTION

13. The paint must not contain any lead or a hexavalent chromium compounds, and in direct contact with the user's skin it must not cause any skin irritation or allergy. Provided observance of the appropriate safety measures the use of the paint shall pose no health hazard. Safety precautions related to chemicals and solvents must be clearly marked on the label of each paint container (can).

IMPLEMENTATION OF THE AGREEMENT

14. This STANAG will be considered as implemented when the necessary orders/instructions have been issued directing forces concerned to implement this STANAG.

Annex A to  
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RELATED DOCUMENTS

AEP-31 «Reference Document of Colours for disruptive  
Camouflage for military Equipment for use in NATO»

CIE (Commission Internationale de l'Eclairage) - Colorimetry  
1986 second Edition, Publication No 15.2.

ISO 1513  
Examination and preparation of samples for testing.

ISO 1514  
Standard panels for testing.

ISO 1517  
Surface-drying test (Ballotini method).

ISO 1519  
Bend test (Cylindrical mandrel).

ISO 1524  
Determination of fineness of grind.

ISO 2409  
Cross-cut test.

ISO 2813  
Measurements of specular gloss of non-metallic paint  
films at 20°, 60° and 85°.

ISO 2814  
Comparison of contrast ratio (hiding power) of paints of  
the same type and colour.

ISO 3270 Temperatures and humidities for conditioning and  
testing.

ISO 105/B04  
Colour fastness to weathering: Xenon arc

ASTM-D-2486  
Standard Test Method for Scrub Resistance of Interior  
Latex Flat Wall Paints. (Apparatus.)

Annex B to  
STANAG 2836 (Edition 3)

PHYSICAL PROPERTIES

PROPERTY	TEST STANDARD	REQUIREMENTS
1. Colour and reflectance		AEP-31
2. Specular gloss	ISO 2813, 60°	3 max
3. Hiding power	ISO 2814	100 ± 10 µm dry film, 98 % hiding power
4. Fineness of grind	ISO 1524	50 µm max
5. Drying time	ISO 1517	Wet paint corresponding to 100 ± 10 µm dry film shall be surface dry within 1 hour
6. Adhesion	ISO 2409	50 ± 5 µm paint film on steel (6 cuts, 1 mm apart). Classification 2 max
7. Elasticity	ISO 1519	15 mm max



Annex B to  
STANAG 2836 (Edition 3)

PROPERTY	TEST STANDARD	REQUIREMENTS
8. Scrubbing resistance	Apparatus according to ASTM-D-2486. Metal sample sheet. Water 1 mm above paint surface. 30 double strokes. Air drying.	No visible change in colour of removable paint.
9. Storage stability	Storage in cans under temperatures between 0 °C and 40 °C	2 years minimum. After slight stirring the paint shall still meet the requirements of this STANAG
10. Influence on substrate		After removal of the paint the substrate must be undamaged. If the substrate has any camouflage colours, the colour change induced by the application and removal shall not exceed 2 CIELAB unit.