



U.S. Department  
of Transportation

**Research and  
Special Programs  
Administration**

400 Seventh Street, S.W.  
Washington, D.C. 20590

JAN 14 1999

Ms. Britt-Marie Butler  
Husqvarna AB  
S-433 81 Jonsered  
SWEDEN

Reference No. 98-0336

Dear Ms. Butler:

This is in response to your letter asking if your packaging, a 6-liter UN 3H1 non-removable head plastic jerrican pin-mounted (joined) to a non-specification 2.5 liter plastic blow-molded bottle, would qualify as a combination packaging in the United States.

The answer is no. As defined in 49 CFR 171.8, a combination packaging means one or more inner packagings secured in a non-bulk outer packaging; a condition your joined packagings do not meet. Instead, your jerrican meets the definition in § 171.8 for a single packaging and must be tested and approved in accordance with the UN specification requirements. Because the packagings are pin-mounted, we also recommend that they be drop tested separately and after being joined together.

I hope this satisfies your request.

Sincerely,

Edward T. Mazzullo  
Director, Office of Hazardous  
Materials Standards



Mick  
178.509, 171.8  
98-0336

The Research and Special  
Programmes Administration  
Office of Hazardous Materials Technology  
DHM/20  
400 7th Street, S.W. (South West)  
Washington D.C. 20590  
USA

Datum/Date  
October 14th, 1998

Vår ref./Our ref.  
B-M. Butler

Er ref./Your ref.

Dear Sirs,

In order to reach the right authority for the below subject we have received valuable help from the US Embassy in Stockholm. Mr. Jerry Fulmecci at the Dept. of Transport informed us that we should address our question to you.

Husqvarna AB is a company within the Electrolux-group, developing, producing and marketing forestry and garden products. After market is an important, growing sector including for example protective clothing, helmets, boots etc. The combi can, 6 l petrol + 2,5 l oil, is one of our most popular products. The can is approved of according to the UN-norms. We are a seriously working firm and would only sell approved products. As far as we understand, the UN-norms are accepted all around the world and therefore we take it, that our daughter company in the US, Husqvarna Forest & Garden, Charlotte, NC, would be allowed to sell it.

We are enclosing the UN-Certificate, issued by the Swedish test institute, SP, the test report issued by Borealis, drawings and other information issued by the manufacturer, Lear Corporation Gnosjöplast AB, for your information. We ask you kindly to look into this matter and to let us know whether our certification papers would be sufficient for selling the combi can in the US. Also, in case of a positive answer, would this apply for all states or do you have different regulations for various states?

We would appreciate having your opinion in this matter sent to the following address:  
Husqvarna AB, Att.: Britt-Marie Butler, S-433 81 JONSERED, Sweden. or (preferably) to the following fax no.: 0046-31-949118.

Looking forward to a positive answer and many thanks in advance.

Best regards,  
HUSQVARNA AB



# CERTIFICATE

No. 11 79 01



issued by an Accredited Certification Body

## Packaging for dangerous goods

### Holder of certificate

Nordic Forestry Equipment AB, Falun, Sweden.

### Product

Plastics jerrican with non-removable head, 3H1. Capacity: 6 l. Description: Combi jerrican 6+2.5. Material: Borealis HE 8253. Tare weight: 740 g. External dimensions (L x W x H): 240 x 160 x 330 mm.: Screw cap: Hostaform HDPE S9244. Gasket: O-ring and gasket.

### Manufacturing plant

Lear Corporation Gnosjöplast AB, Gnosjö, Sweden.

### Decision

SP issues the certification of the product described above on the following legal basis:

- Swedish Rescue Services Board Statutes SRVFS 1996:2 and 1996:3,
- National Maritime Administration Statutes SJÖFS 1995:2,
- Board of Civil Aviation Statutes LFS 1984:2,
- Swedish Ordinance SFS 1982:923 for the transport of dangerous goods

### Marking

Each product, manufactured in accordance with Certification Rules SPCR 059, and which is subjected to manufacturing inspection according to Agreement No. 130-82-351, may be marked as follows:

 3H1/Y1.0/200/YR/S/SP-11 79 01-ID

where "YR" is to be replaced by the month and last two digits of the year of manufacture, and where "ID" is replaced by any identification as decided by the manufacturer.

### Notes

The underlying documents for certification, limitations with regard to substances and transport conditions and other relevant information are found in Appendix 1 to this Certificate.

This Certificate is valid until and including 30 September 2003.

Borås, 3 September 1998

SP Swedish National Testing and Research Institute  
Certification

Ulrik Nilsson  
Deputy Head of Certification Dept.

Nina Järni  
Technical Officer



3 September 1998

Appendix 1  
to  
**CERTIFICATE**  
No. 11 79 01

### Regulations supporting the certification

- ADR, European Agreement concerning the International Carriage of Dangerous Goods by Road.
- RID, International Regulations on the Transport of Dangerous Goods by Rail.
- IMDG, International Maritime Dangerous Goods Code, for sea transport.
- ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air, and IATA Dangerous Goods Regulations, for air transport.
- UN Recommendations on the Transport of Dangerous Goods.

### Basis

Test report	Date	Issued by	Scope
MTU98020	1998-09-03	Borealis A/S	Mandatory type testing

### Substance and transport limitations

In addition to the conditions stated in the applicable regulations the following limitations apply for the filling substance:

#### Type of contents

Liquid substances which do not adversely affect the packaging materials. Compatibility testing has been carried out according to the ADR and RID with the following model liquid: White spirit.

#### Permitted packing groups

II and III.

#### Maximum allowable vapour pressure at + 50 °C

171 kPa.

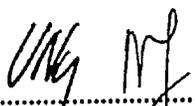
#### Maximum relative density

1.0.

#### Maximum gross weight

Not applicable.

#### Other information or notes

  
.....  
Signature



# REPORT

REPORT issued by an Accredited Laboratory

File no.: 63.6310  
Report no. MTU98020

Project no. 30042  
TR no. 2195

Page 1 of 5  
Number of enclose: 8

Manufacturer: Gnosjöplast AB  
Address: S-33500 Gnosjö  
SWEDEN  
Attn.: Christer Lundh  
O: (46) 370 33 15 50 F: (46) 37 09 22 22

Test work is performed by:  
Material Testing,  
Borealis, Rønningen

Test specimen(s) arrival date: 30.01.96  
Date of starting: 09.05.96

Date of completing: 14.01.98

Title: UN TEST, 6 LITRE BLOW MOULDED PETROL CAN, WITH A 2,5 LITRE BLOW MOULDED OIL CAN. (COMBINATION PACKAGING)

Distribution:

External:

1. Christer Lundh
2. Runar Bjørnsen

Internal

1. Inger Lise Stålhane
2. Helge Grande (first page)
3. Hege Vale Baann (first page)
4. Jens Dag Halvorsen (first page)
5. Secretary skill centre moulding

Author/title:

*Rune M. Fink*  
Rune M. Fink / Engineer

Date:

18/6-98

Approved by head of lab.

Date:

*Inger Lise Stålhane* 18/6-98  
Inger Lise Stålhane

Tested item(s): Blow moulded 6 l Petrol can (740 g), "CombiDunk 6+2,5".

Tests are ordered by: Jens Dag Halvorsen

Date: 02.02.96

Material(s):

Petrol can made of orange HMW HDPE HE 8253, MFR<sub>21.6</sub> = 10.0, density = 0.953  
Closure; screw cap with built in spout, made of green HMW HDPE HOSTAFORM S9244.  
Gasket and o-ring made of black rubber.

Testing specification: The transport conventions ADR (by road), RID (by railway), IMDG (at sea), ICAO & IATA (by air) and UN recommendations on "Transport of dangerous goods", according to the latest revised edition.

Test goal: Approval for packing group II (including III).

Model liquid: White Spirit, specific gravity 1.0

Conclusion:

The 6 litre Petrol can with one screw cap, 3H1, with a 2.5 litre blow moulded oil can (Combination packaging), fulfil the requirements for transport of dangerous goods packing group II, ADR, latest revised edition. The can also pass the special requirement for petrol cans.  
Maximum vapour pressure for the Petrol can at 50 °C is 171 kPa.  
The test results relate only to the items tested.

Laboratories are accredited by the Swedish Board for Accreditation and Conformity Assessment (SWEDAC) under the terms of Swedish legislation. The Swedish accredited laboratories meet the requirements in SS-EN 45001(1999), SS-EN 45002(1999) and ISO/IEC Guide 25 (1996). This report may not be reproduced other than in full, except with the prior written approval of SWEDAC and the issuing laboratory.

Borealis AS  
N-3960 Stathelle  
The Register of Business Enterprises.NO 968144405

Telephone: +47 35 57 74 28  
Telefax: +47 35 57 72 09

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## 1. INTRODUCTION

| page 2 of 5

Gnosjöplast AB, Sweden have requested an accredited test for their 6 litre combi can (petrol/oil in mixed packing).

It is no requirement regarding testing of the 2,5 litre oil can, but the drop test is performed with the oil can, pin mounted to the petrol can. This is done to take hold for the mass movement when the can hit the target.

An accredited test for petrol cans includes;

drop test	(ADR 3552)
leakproofness test	(ADR 3553)
internal pressure test	(ADR 3554)
stacking test	(ADR 3555)
permeation test	(ADR 3556).

The standard liquid used was White spirit at 1.0 sg.

### 1.1 Material specification

Material in the Petrol can (and oil can): Orange HMW HDPE HE8253 (Enclosure 1).

Material in the screw cap with built in spout: Green HMW HDPE HOSTAFORM S9244 (Enclosure 2).

Material in the gasket and o-ring: Black rubber.

Design of the Petrol can, see photos (Enclosure 3) and drawing of the Petrol can (Enclosure 4, 5, 6 and 7).

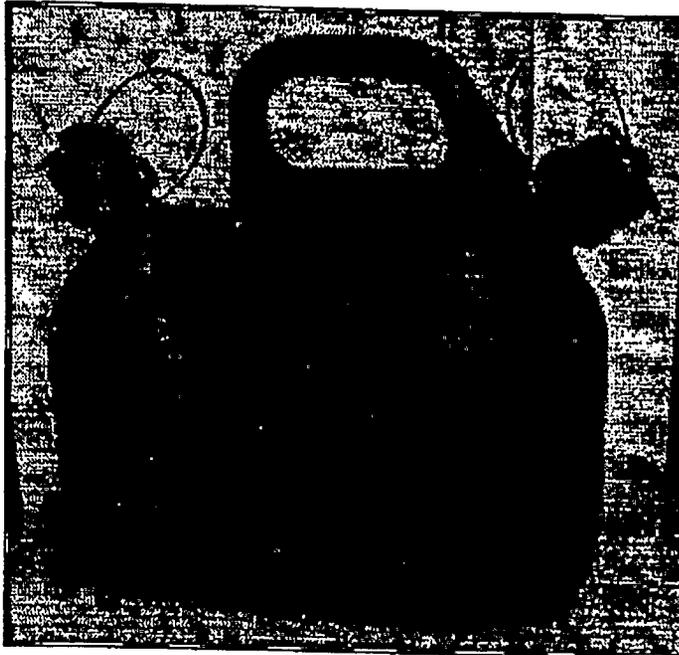
Design of the screw cap, see photos (Enclosure 8).

### 1.2 Regulations/standards

For all of the tests the methods are in accordance with the UN recommendations on "Transport of dangerous goods", ninth edition, and with the transport conventions ADR/RID. Especially ADR, latest revised edition.

The test procedure is made according to our interpretation of ADR, Appendix A.5.

### 1.3 Defined capacities, dimensions and weights.



#### The Petrol can:

Weight from producer (g):	740
Weight average of 10 (g):	747.6
Nominal capacity (litre):	6.0
Brimful capacity (litre):	6.6
Measurements h·w·d (on top) (mm):	330·160·240
Minimum wall thickness (mm):	2,19
Max. gross weight (kg):	10,0
Max. tare mass (g):	1272
Inside diameter of the spout (mm):	39.4

#### The screw cap:

Weight incl. gasket/spout (g):	125.0
Outside height (mm):	57.0
Inside diameter (mm):	45.0
Weight of gasket (g):	2.3

#### The oil can:

Weight include cap and screws (g)	407.0
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## 2. TESTING PARAMETERS

The Petrol can were tested for packing group II with a closure torque at 3.0 Nm. The specific tests performed on the can was:

### 2.1 Chemical compatibility

Performed with standard liquid; White Spirit.

### 2.2 Drop test

The Petrol cans were filled up to 98% of Brimful capacity with a mixture of (1:1) of water and antifreeze, and cooled to -20 °C.

The specific gravity of the antifreeze mixture is 1.07.

Three cans were released to hit the target diagonally on the screw cap.

Three cans were released to hit the target diagonally on the bottom seam.

**Note;** the oil can containing glycol, was part of the drop test.

Criteria for passing the test: No leakage shall occur. Provided the discharge is slight, and no further leakage occurs, it is not considered to be a failure of the test.

### 2.3 Leakproofness test

Three empty Petrol cans were restrained just under the surface of water in a tank. An air pressure of 20 kPa was applied on each sample and remained constant for at least 5 minutes.

Criteria for passing the test: No leakage shall occur.

### 2.4 Internal pressure test

Three Petrol cans were filled with water, and a water pressure of 200 kPa was applied on each sample and remained constant or slightly above for at least 30 minutes.

Criteria for passing the test: No leakage shall occur.

### 2.5 Stacking test

The Petrol cans were filled up to minimum 98% of Brimful capacity with White Spirit (ADR 3551-1). The test sample should be subjected to a force applied to the top of the test sample equivalent to the total weight of identical packages in a height of 3 meters. The Petrol cans should be subjected to the stacking test for a period of 28 days, at a temperature of not less than 40 °C. (ADR 3555-3)

Criteria for passing the test: No leakage shall occur. The packaging shall not have been damage in such a way that it reduces the safety in transport, or have deformation that can reduce its strength.

## 2.6 Permeation test

The petrol cans were filled up to minimum 98% of Brimful capacity with White Spirit, then immediately after, the weight of each can was measured. The weight was then measured after storage for 28 days at a temperature of 23° C.

Criteria for passing the test: the permeation must not be higher than 8,0 mg/l/h.

## 3. RESULTS

### 3.1 White Spirit as standard liquid at sg 1.0.

#### 3.1.1 Chemical compatibility

The chemical compatibility of the packaging is done by storage for 28 days at not less than 40 °C, with standard liquid White Spirit.

#### 3.1.2 Drop test, with drop height 1.2 m.

Three drops diagonally on the screw cap. Three samples approved.

Three drops diagonally on the bottom seam. Three samples approved.

#### 3.1.3 Leakproofness test, with air pressure of 20 kPa.

Three samples approved.

#### 3.1.4 Internal pressure test, with hydraulic pressure of 200 kPa.

Three samples approved.

#### 3.1.5 Stacking test, with White Spirit at sg. of 1,0.

Stacking weight 55 kg. Three samples approved.

#### 3.1.6 Permeation test.

The mean permeation of the three petrol cans were 0.9 mg/l/h, the limit is set to 8 mg/l/h or less.

Three samples approved.

*Letter from Kenneth Nilsson, Mouldex Plast AB*

*Enclosure 2*

Telefax from  
**Mouldex Plast AB**  
+ 46 44 24 58 39

Datum: 98-04-01

To: Lear Corporation, Christer Lundh

Faxno:0370-92222

cc:

From: Kvalitetsavdelningen / Kenneth Nilsson

Pages: 1

Subject:

Bensinpip kpl (21004300100) Det.nr 4.22142

Den 3/12-97 levererade jag 10 st bensinpip med nytt material i skruvkorken och införd o-ring.

Materialet i skruvkorken var : HOSTAFORM S9244

Med vänlig hälsning

Kenneth Nilsson

Address

Telefon

Fax

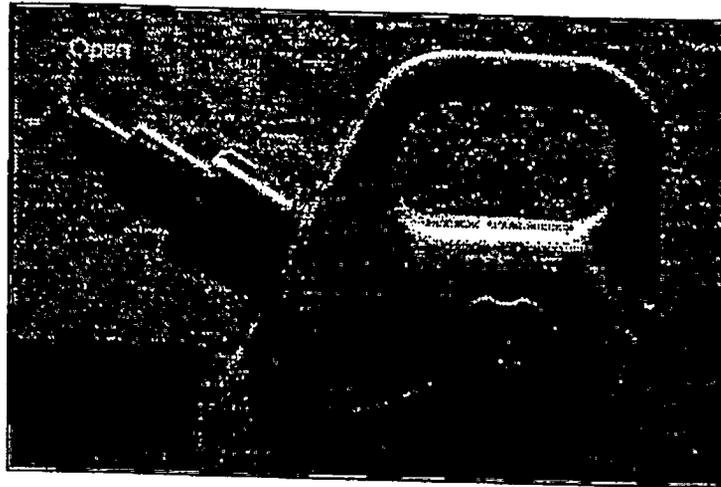
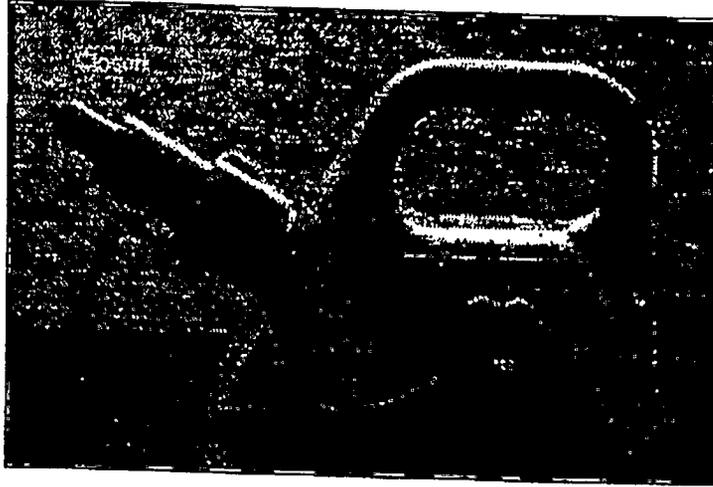
Mouldex Plast AB  
Box 9093  
S-291 09 Kristianstad  
Sweden

+ 46 44 24 64 00

+46 44 24 58 39

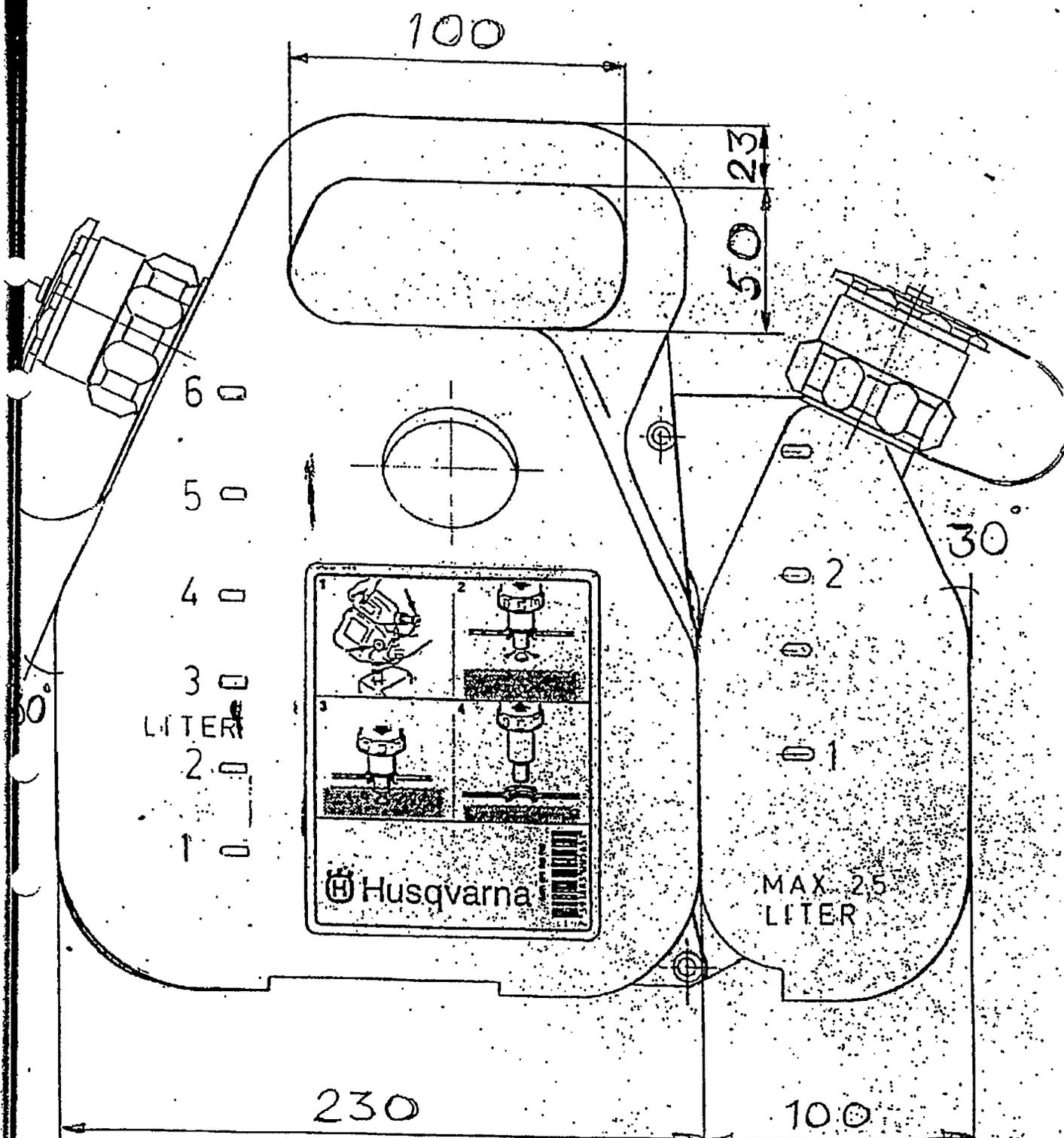
*Photo of the 6 litre petrol can*

*Enclosure 3*



Drawing of the 6 litre can, and oil can from left

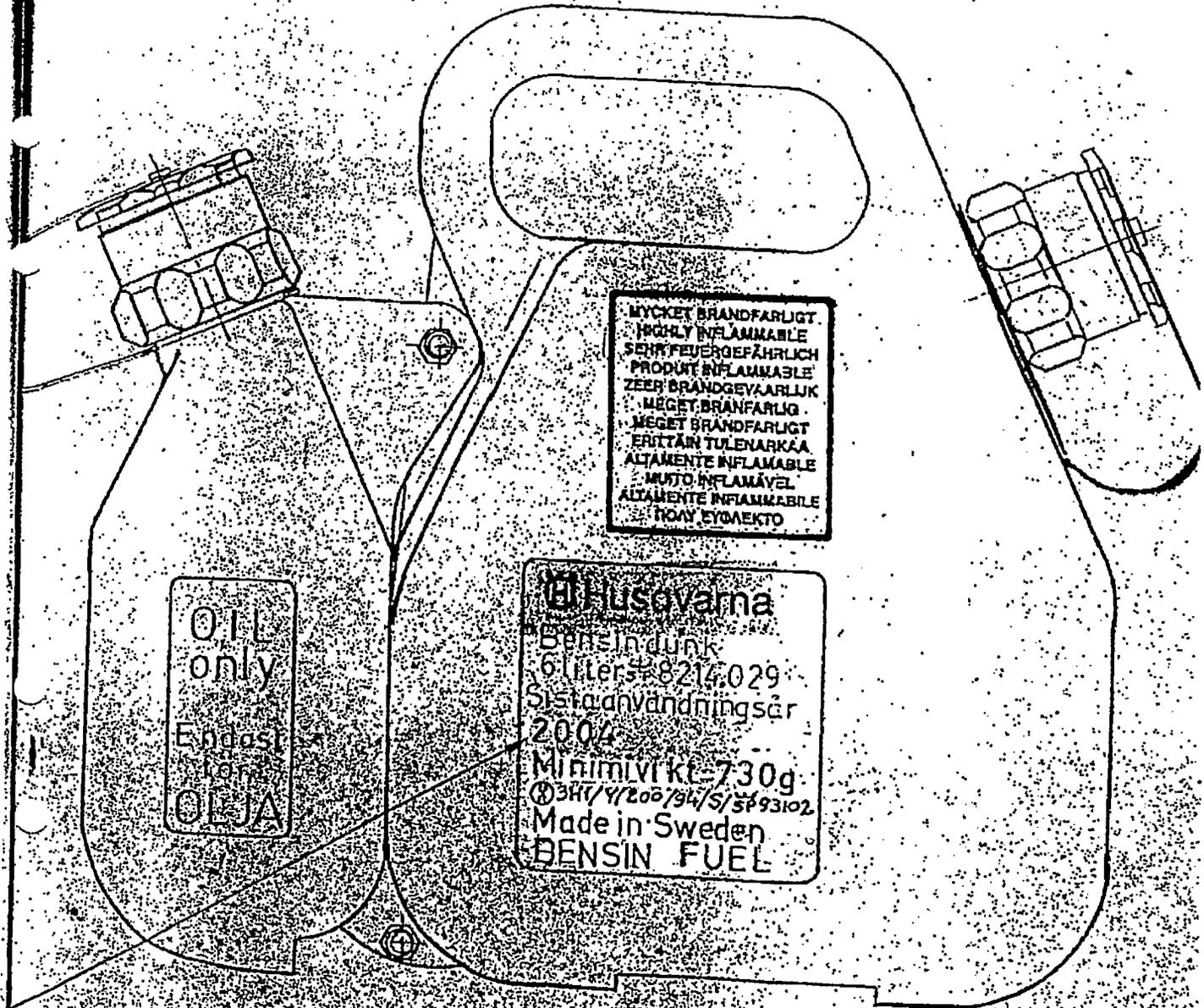
Enclosure 4



Detailnr	Benämning	Material el. beteckning	Anmärkning

Drawing of the 6 litre can, and oil can from right

Enclosure 5



1994-03-23

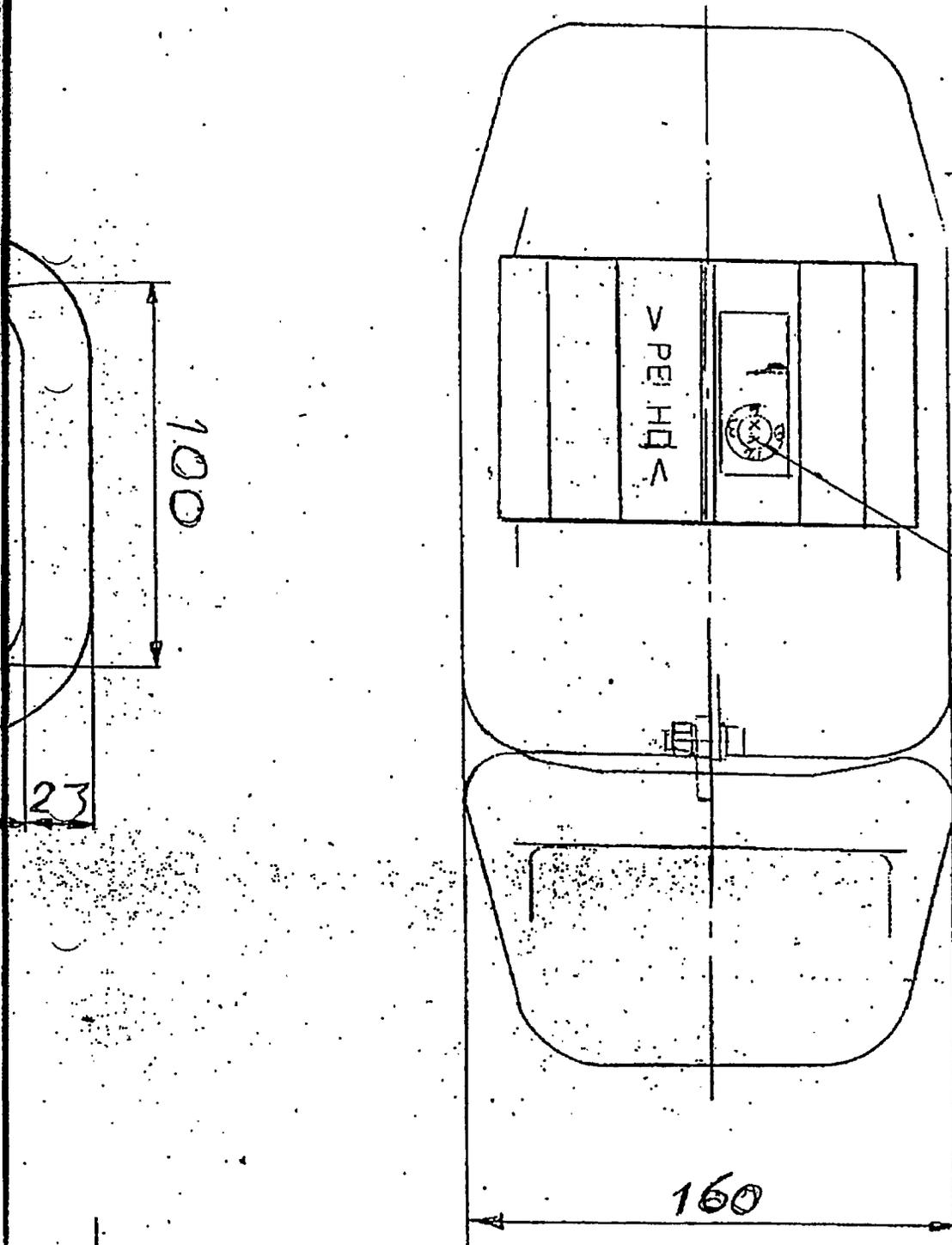
5056980

Godk. för utför. ej tillv.		Datum	Sign.	Godk. för tillverk.		Datum	Sign.	Godk. för serieprod.		Datum	Detail nr	
Material och behandling: <i>Polyleten HD 2234</i>												
Färg: <i>Orange</i>												
Datum	Kontst.	Ritad	Kontst.	Stånd	Godk.	Typ	Orig. skala	Format	Foto	Ersätter	Ingår i	Jämför
<i>9/04/12</i>							<i>1:2</i>	<i>A2</i>				
Benämning (max 70 bes): <i>Electrolux Motor Kombidunk</i>										Ritning nr: <i>505 6980</i>		



*Drawing of the 6 litre can, and oil can from bottom*

*Enclosure 7*



*De två sista siffrorna  
i tillverkningsåret.*

*Photo of the Screw cap*

*Enclosure 8*

