

**Economic Commission for Europe**

Inland Transport Committee

**Working Party on the Transport of Dangerous Goods**

13 September 2013

**Joint Meeting of the RID Committee of Experts and the  
Working Party on the Transport of Dangerous Goods**

Geneva, 17-27 September 2013

Item 7 of the provisional agenda

**Reports of informal working groups**

**Addendum to INF.32 – test report**

**Submitted by the IDGCA**



**CENTRAL MARINE RESEARCH AND DESIGN INSTITUTE (CNIIMF)  
CNIIMF TEST CENTER**

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IMO

Accredited as Dangerous Goods Packaging, Testing and Certification Institute (Certificate MSC.1/Circ.1451 dated 03.05.2013) by International Maritime Organization (IMO)



Certificate issued by the Russia's Federal Service for Accreditation No.ROSS RU.000121TB10/15.08.2012



APPROVED BY:

Test Center Director (CJSC "CNIIMF")

O.E.Karpovich

(signature/seal) 05.09.2013

**TEST REPORT No. 789/2013**

**QUALIFICATION TESTS OF FLEXIBLE BULK CONTAINERS MK-14-10  
FOR CONFORMITY WITH REQUIREMENTS TO STATIC STABILITY ANGLE  
AS PER UN ECE DIRECTIVE No. 111**

**APPLICANT: CJSC "NOVYE TECHNOLOGII V TRANSPORTE"  
(NEW TECHNOLOGIES IN TRANSPORT)**

**SAINT PETERSBURG**

**2013**

## 1 Product subject to test

Flexible bulk containers MK-14-10, loaded with fine alumina,  $0.99\text{g/cm}^3$  (Annex 2)

Conventional designation of container type as per IMDG Code: BK3

## 2 Normative Regulatory documentation for the product

Specifications TU 2297-001-56579756-06

Flexible bulk containers of specialized type MK-14-10, made of synthetic materials with inserts liner for packaging, transporting and storage of bulk materials, foodstuff inclusively.

## 3 Manufacturer

CJSC "Novye Tekhnologii v Perevozkakh" (New Technologies in Transport)

12/4 Maly Gnezdnikovsky Pereulok, Moscow, 125009

Contact phone: +7 (495) 629-6901, 629-8001, 629-3501

Fax: +7 (495) 629-6901

[nttrans.net@gmail.com](mailto:nttrans.net@gmail.com)

## 4 Applicant for certification

CJSC "Novye Tekhnologii v Perevozkakh" (New Technologies in Transport)

12/4 Maly Gnezdnikovsky Pereulok, Moscow, 125009

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[nttrans.net@gmail.com](mailto:nttrans.net@gmail.com)

## 5 Basis for tests

Contract No. 2-467/62-2013 dated 31 July 2013

## 6 Sample-taking

Sample-taking certificate dated of 27 August 2013 (Annex 1)

## 7 Parameter under test

Static stability angle of flexible bulk containers MK-14-10, loaded with fine alumina,  $0.99\text{g/cm}^3$ , depending on loading height.

## 8 List of normative regulatory documentation for test method (International standards)

UN ECE Directive No.111 "Uniform regulations on official approval of N-category road tank cars, concerning their stability to overturning

## 9 List of test equipment

- Truck trailer No.BE 4677, equipped with a platform for FBC testing, truck crane, 20-ton-capacity for tilting the trailer, caterpillar crane 40-ton-capacity, for avoiding the FBC fall-down (Photo 1).
- Digital inclinometer “DNM 60L”, calibration certificate No. 006264 of 13.02.2013, validity term: 2 years.



- Photo/video camera CASIO Exilim “EX FH-100” S/N 41003731A.



**Photo 1** A general view of testing complex

## 10 Sample characteristics

Three flexible bulk containers (MK-14-10) designed for transportation and temporary storage of solid dangerous goods, packaging group III (Table 1) and filled with alumina (Photo 1), were put under test.

Samples were weighed.

Appearance, condition of seams and loading slings of each sample were inspected visually.

Table 1. Sample characteristics

Sample No.	Circumference length, mm	Height, mm	Alumina weight, net, ton
1	7775	1900	9.3
2	7776	2150	10
3	7800	2570	11.3

## 11 Determination of static stability angles of samples depending on the height of loaded FBC

FBC samples were loaded with alumina by a standard method through its upper access hole and were kept at the warehouse at least for 24 hours afterwards.

Gradually, the FBC was arranged on the trailer platform. The truck crane performed a slow lifting of the trailer's front part up to the moment, when the FBC started to overturn. Meanwhile, during elevation, the caterpillar crane left its safety slings load-free (with some slack) by not allowing the FBC downfall from the trailer after overturning.

Visual control over inclination angle of the trailer platform was carried out by inclinometer with simultaneous sound recording by means of a video-camera.

Based on video recording, some snapshots were selected showing the moments, when each FBC starts overturning (as soon as any load appears on the safety slings).

On printed-out pictures, platform tilting angles were measured in relation to a horizon (FBC's static stability angles) displayed on the following photos:



The first container. Video file 3373. Snapshot 3:12/3:22.  
Platform is tilted up to the angle 23.8 degrees.



The second container. Video file 3381. Snapshot 2:14/2:20.  
Platform is tilted up to the angle 23.0 degrees

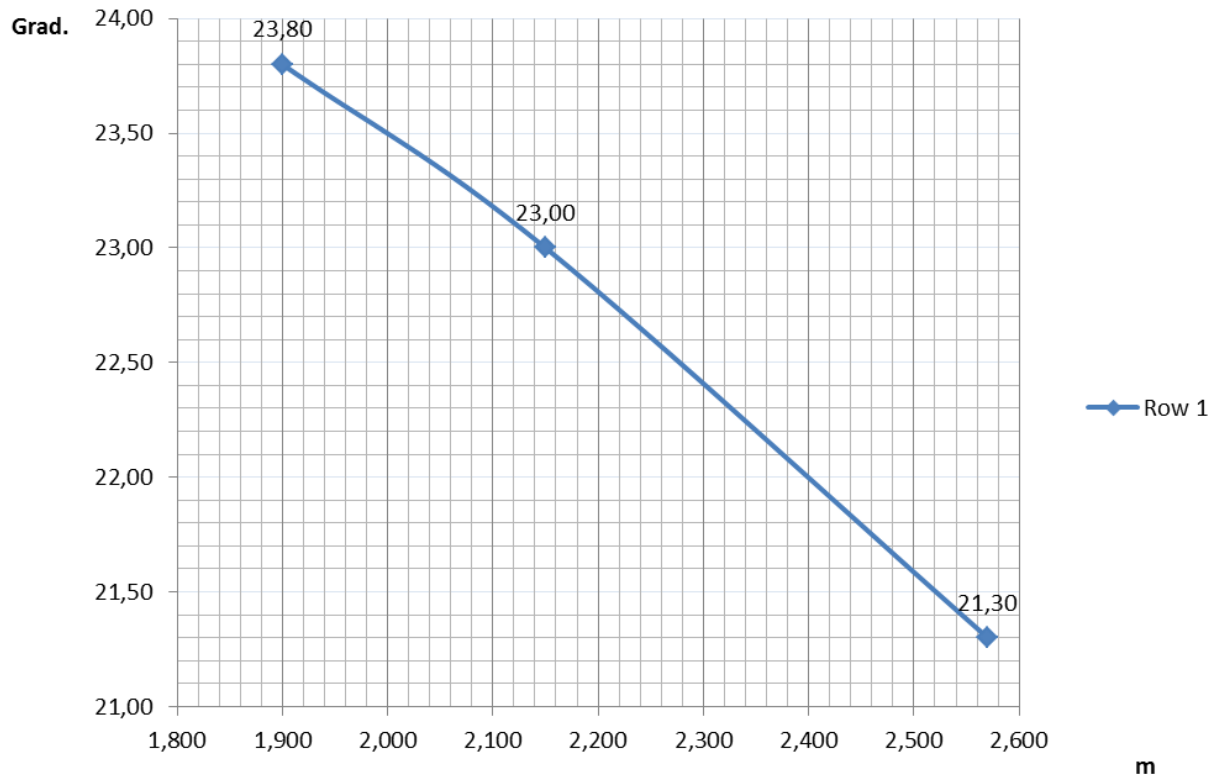


The third container. Video file 3389. Snapshot 1:42/1:50.  
The platform is tilted up to the angle 21.3 degrees.

Measured angles of platform tilting fully coincided with angles recorded by audio-video camera.

## 12 Test results

Based on test results, a curve was plotted for FBC MK14-10, filled with fine bulk alumina, showing static stability angle as a function of loading height.



X-axis of this plot indicates the loading height of FBC filled with alumina and stored for at least 24 hours, whereas the y-axis of the plot shows the relative angle of static stability in degrees.

## 13 Testing dates

Test commencement: 27.08.2013

Test completion: 27.08.2013

## 14 Conclusions

The displayed curve allows determining the permissible loading height of FBC MK-14-10 filled with alumina and stored during 24 hours for highway haulage in compliance with international regulations on safe conditions for tank-body trucks.

Test performed by:

Organization name	Full name and title	Signatures
CJSC "CNIIMF"	Karpovich Evgeniy Borisovich, Cargo securing laboratory head	
CJSC "Novye Tekhnologii v Transporte"	Akhundov Emil Akmedovich, Technical Director	
LLC "Nikolayev Alumina Refinery"	Yatsenko Vladimir Sergeyeovich, Cargo handling section head	

This Report is drawn up on 05.09.2013.

The Report is referred only to the samples, which passed the tests.

Reprinting in part is allowed only with Test Center's approval.



**SAMPLE-TAKING CERTIFICATE**

27 August 2013

Applicant's name and address: CJSC "Novye Tekhnologii v Pervozkakh" (New Technologies in Transport)  
12/4 Maly Gnezdnikovski Pereulok, Moscow, 125009, Russia

Manufacturer's name and address: the same

Product name: Flexible bulk container MK-14-10

Sampling place: LLCC Nikolayev Alumina Refinery

62a Artem St.m Nikolayev, 54051, Ukraine

Measuring unit: pcs

Lot size: 121

Visual inspection result: containers have been inspected and found to conform to operational requirements.

Production date: May-June 2013

Samples were taken according to the Enterprise Standard.

The number of taken samples: 3 flexible bulk containers MK-14-10 with parameters as follows:

No.	Circumference length, mm	Loading height, mm	Alumina weight, net, ton
1	7775	1900	9.3
2	7776	2150	10.0
3	7800	2570	11.3

for testing.

Sampling purpose: testing of flexible bulk container MK-14-10 for static stability within the framework of UN ECE Directive No.111.

Signatures of persons, who took the samples and were present during this procedure:

Organization name	Signatures	Full name and title
Central Marine Research and Design Institute (CNIIMF)	Signature affixed	Karpovich Evgeniy Borisovich, Cargo Securing Laboratory Head
CJSC "Novye Tekhnologii v Pervozkakh"	Signature affixed	Akhundov Emil Akhmedovich, Technical Director
LLC "Nikolayev Alumina Refinery"	Signature affixed	Yatsenko Vladimir Sergeyeovich, Cargo handling section chief

**QUALITY CERTIFICATE**

1. Manufacturer plant: LLC Nikolayev Alumina Refinery
2. Product name: Alumina (metallurgical)
3. Normative document: GOST 30558-98
4. Document No. 755
5. Grade; G-0
6. Date of issue: 30.08. 2013

Lot No	Lot weight, ton	Fraction of total mass, %											
		SiO <sub>2</sub>	Fe <sub>2</sub> O <sub>3</sub>	TiO <sub>2</sub>	V <sub>2</sub> O <sub>5</sub>	Cr <sub>2</sub> O <sub>3</sub>	MnO	ZnO	P <sub>2</sub> O <sub>5</sub>	Na <sub>2</sub> O	Other imp.	moisture	Alfa
614	3100.450	0.026	0.017	0.004	0.0004	0.0003	0.0003	0.001	0.0003	0.37	0.87	0.37	5.6

Slope angle - 32.2°

Bulk density: 0.99 g/cm<sup>3</sup>  
Specific surface area: 87.2 m<sup>2</sup>/gFraction below 45μ: 34.5%  
Fraction over 125μ: 2.6%  
Fraction over 150μ: 0.4 %

GTK Chief (signature)

Stamp: BTK (Nikolayev Alumina Refinery)

**E**

4 ALBERT EMBANKMENT  
LONDON SE1 7SR  
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MSC.1/Circ.1451  
3 May 2013

## CARRIAGE OF DANGEROUS GOODS

### THE INTERNATIONAL MARITIME DANGEROUS GOODS (IMDG) CODE

#### Contact information for the designated national competent authority

1 The carriage of dangerous goods by sea is governed by the regulations of chapter VII of the International Convention for the Safety of Life at Sea (SOLAS), 1974. Part A of SOLAS chapter VII regulates the carriage of dangerous goods in packaged form and SOLAS regulation VII/3 requires that carriage of dangerous goods in packaged form shall be in compliance with the relevant provisions of the IMDG Code.

2 Section 7.9.3 of the IMDG Code identifies the main offices of designated national competent authorities. The annex<sup>1</sup> to this circular provides a more comprehensive listing of contact information for competent authorities and bodies including:

- .1 the designated national competent authorities;
- .2 competent authorities and bodies which have been designated for the testing and certification of packagings, intermediate bulk containers (IBCs) and large packagings; and
- .3 competent authorities and bodies which have been designated as competent inspection agencies or authorities for testing, approval, acceptance and other duties connected with portable tanks, road tank vehicles, multiple-element gas containers (MEGCs) and bulk containers (BK2).

<sup>1</sup> For national competent authorities responsible for approval and authorization in respect of the transport of radioactive material, see also the International Atomic Energy Agency's (IAEA) National Competent Authorities List. Specific information on package approvals issued by individual Member States for the transport of radioactive materials is available from the issuing competent authority. IAEA maintains a database (PACKTRAM) on valid package approval certificates from Member States to respond to technical and administrative inquiries concerning such approvals. An annual report is published in the form of a technical document entitled "Directory of National Competent Authorities" Approval Certificates for Package Design and Shipment of Radioactive Material. Enquiries may be directed to:

Division of Radiation, Transport and Waste Safety  
International Atomic Energy Agency (IAEA)  
Wagramerstrasse, 5  
1400 Vienna  
Austria

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3 To keep the annex as up to date as possible, Administrations which have not as yet provided the information, or which have previously provided information that needs to be updated, are invited to review the annex and to notify the Secretariat<sup>2</sup> accordingly.

4 This circular revokes MSC.1/Circ.1410.

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<sup>2</sup> International Maritime Organization (IMO)  
4 Albert Embankment  
London SE1 7SR  
United Kingdom

Tel: +44 20 7735 7611  
Telefax: +44 20 7587 3210  
E-mail: info@imo.org

<b>COUNTRY</b>	<b>Contact information for national competent authority</b>
<b>RUSSIAN FEDERATION</b> (continued)	<p>Ministry of Transport of the Russian Federation Regulation of Maritime Transport Operation Department 1/4 Rozhdestvenka Street Moscow 103759 Russian Federation</p> <p>Telephone: +7 095 151 3839 +7 095 151 3406 +7 095 151 3839</p> <p>Telex: 411197 MMF RU</p> <p><i>Packaging, testing and certification Institute</i> Central Marine Research and Design Institute (CNIIMF) 6. Kavalergardskaya Street Saint Petersburg, 193015 Russian Federation</p> <p>Telephone: +7 812 275 89 47 Telefax: +7 812 274 38 64 Telex: 821483 CNIMF RU</p>
<b>SAINT KITTS AND NEVIS</b>	<p>Department of Maritime Affairs Director of Maritime Affairs Ministry of Transport P.O. Box 186, Needsmust St. Kitts, W.I.</p> <p>Telephone: +869 466 7032/ 4846 Telefax: +869 465 0604/ 9475 E-mail: Maritimeaffairs@yahoo.com</p> <p>St. Kitts and Nevis International Registrar of Shipping and Seamen West Wing, York House 48-50 Western Road Romford RM1 3LP United Kingdom</p> <p>Tel: +44 1708 380 400 Telefax: +44 1708 380 401 E-mail: mail@stkittsregistry.net</p>
<b>SAO TOME AND PRINCIPE</b>	<p>The Minister Ministry of Public Works, Infrastructure &amp; Land Planning C.P. 171 Sao Tome and Principe</p> <p>Telephone: +239 223 203 +239 226 368</p> <p>Telefax: +239 222 824</p>
<b>SAUDI ARABIA</b>	<p>Port Authority Saudi Arabia Civil Defence Riyadh Saudi Arabia</p> <p>Telephone: +966 1 464 9477</p>



THE FEDERAL SERVICE FOR ACCREDITATION

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## TESTING LABORATORY (CENTER) CERTIFICATE

No. ROSS RU.0001.21TB10

This document is granted to Closed Joint Stock Company "Central Marine Research and Design Institute (CNIIMF), OGRN 1027809198713, located at 6, Kavalergardskaya Str., Saint Petersburg, 191015, Russian Federation

It hereby certifies that the Testing Center, 3/1 Mezhevoy Kanal, Saint Petersburg, 198035, Russian Federation conforms with requirements of GOST ISO IEK 17025-2009

and it is accredited due to its technical competence and independence to perform tests according to the scope of accreditation. The scope of accreditation is defined in the supplement to the present Certificate, which is its integral part.

Certificate validity term: from August, 15, 2012 to August 15, 2017

Certification Body Chief (Deputy Chief): S.V. Mighin (signature)

Seal: Federal Service for Accreditation of the Russian Federation