



GOVERNMENT GAZETTE

OF THE

REPUBLIC OF NAMIBIA

N\$57.00

WINDHOEK - 2 December 2016

No. 6190

CONTENTS

Page

GOVERNMENT NOTICE

No. 289	Publication of sanction list; issuing of freezing order and issuing of arms embargo: Prevention and Combating of Terrorist and Proliferation Activities Act, 2014	1
---------	---	---

Government Notice

MINISTRY OF SAFETY AND SECURITY

No. 289

2016

PUBLICATION OF SANCTION LIST; ISSUING OF FREEZING ORDER AND ISSUING OF ARMS EMBARGO: PREVENTION AND COMBATING OF TERRORIST AND PROLIFERATION ACTIVITIES ACT, 2014

In terms of –

- (a) Section 23(1)(a) of the Prevention and Combating of Terrorist and Proliferation Activities Act, 2014 (Act No. 4 of 2014), I publish, as Annexure, the sanction list issued by the United Nations Security Council pursuant to -
- Security Council Resolutions 1718 (2006) and its successor resolutions, as updated on 30 November 2016;
- (b) Section 23(1)(b) of the Act referred to in paragraph (a) I issue a freezing order in respect of -
- (i) any funds, assets or economic resources that are owned or controlled directly or indirectly by the designated persons or organizations, without such funds or assets necessarily tied to a particular terrorist act, plot or threat;
 - (ii) all funds, assets or economic resources that are wholly or jointly owned or controlled, directly or indirectly by the designated persons or organisations;

- (iii) funds, assets or economic resources derived or generated from funds or other assets; owned or controlled, directly or indirectly by the designated persons or organizations, including interests that may accrue to such funds or other assets;
 - (iv) funds, other assets or economic resources of persons or organisations acting on behalf of or at the direction of the designated persons or organisations; or
 - (v) any funds or assets held in a bank account as well as any additions that may come into such account after the initial or successive freezing.
- (c) Section 27(1) of the Prevention and Combating of Terrorist and Proliferation Activities Act, 2014 (Act No. 4 of 2014) I issue an arms embargo preventing the direct or indirect supply, sale, brokering or transfer to designated persons, organizations or countries of all types of arms and related materials -
- (i) by Namibian citizens or residents of Namibia;
 - (ii) by Namibian citizens outside Namibia;
 - (iii) using Namibian flagged vessels or aircraft or aircraft registered in Namibia.

C. NAMOLOH
MINISTER OF SAFETY AND SECURITY

Windhoek, 30 November 2016

ANNEXURE

**The List established and maintained pursuant to Security Council res. 1718 (2006)**

Generated on: 1 December 2016

"Generated on refers to the date on which the user accessed the list and not the last date of substantive update to the list. Information on the substantive list updates are provided on the Council / Committee's website."

Composition of the List

The list consists of the two sections specified below:

A. Individuals**B. Entities and other groups**

Information about de-listing may be found at:

<https://www.un.org/sc/suborg/en/ombudsperson> (for res. 1267)

<https://www.un.org/sc/suborg/en/sanctions/delisting> (for other Committees)

<https://www.un.org/en/sc/2231/list.shtml> (for res. 2231)

A. Individuals

KPi.001 Name: 1: YUN 2: HO-JIN 3: na 4: na

Title: na **Designation:** Director of Namchongang Trading Corporation **DOB:** 13 Oct. 1944 **POB:** na **Good quality a.k.a.:** Yun Ho-chin **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no.:** na **National identification no.:** na **Address:** na **Listed on:** 16 Jul. 2009 **Other information:** Director of Namchongang Trading Corporation; oversees the import of items needed for the uranium enrichment program.

KPi.002 Name: 1: RI 2: JE-SON 3: na 4: na

Title: na **Designation:** Minister of Atomic Energy Industry since April 2014. **DOB:** 1938 **POB:** na **Good quality a.k.a.:** Ri Che-son **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no.:** na **National identification no.:** na **Address:** na **Listed on:** 16 Jul. 2009 (amended on 30 Jul. 2014) **Other information:** Minister of Atomic Energy Industry since April 2014. Former Director of the General Bureau of Atomic Energy (GBAE), chief agency directing DPRK's nuclear program; facilitated several nuclear endeavors including GBAE's management of Yongbyon Nuclear Research Center and Namchongang Trading Corporation.

KPi.003 Name: 1: HWANG 2: SOK-HWA 3: na 4: na

Title: na **Designation:** Director in the General Bureau of Atomic Energy (GBAE) **DOB:** na **POB:** na **Good quality a.k.a.:** na **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no.:** na **National identification no.:** na **Address:** na **Listed on:** 16 Jul. 2009 **Other information:** Director in the General Bureau of Atomic Energy (GBAE); involved in DPRK's nuclear program; as Chief of the Scientific Guidance Bureau in the GBAE, served on the Science Committee inside the Joint Institute for Nuclear Research.

KPi.004 Name: 1: RI 2: HONG-SOP 3: na 4: na

Title: na **Designation:** Former director, Yongbyon Nuclear Research Center **DOB:** 1940 **POB:** na **Good quality a.k.a.:** na **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no.:** na **National identification no.:** na **Address:** na **Listed on:** 16 Jul. 2009 **Other information:** Former director, Yongbyon Nuclear Research Center, oversaw three core facilities that assist in the production of weapons-grade plutonium: the Fuel Fabrication Facility, the Nuclear Reactor, and the Reprocessing Plant.

KPi.005 Name: 1: HAN 2: YU-RO 3: na 4: na

Title: na **Designation:** Director of Korea Ryongaksan General Trading Corporation **DOB:** na **POB:** na **Good quality a.k.a.:** na **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no.:** na **National identification no.:** na **Address:** na **Listed on:** 16 Jul. 2009 **Other information:** Director of Korea Ryongaksan General Trading Corporation; involved in DPRK's ballistic missile program.

KPi.006 Name: 1: PAEK 2: CHANG-HO 3: na 4: na

Title: na **Designation:** Senior official and head of the satellite control center of Korean Committee for Space Technology **DOB:** 18 Jun. 1964 **POB:** Kaesong, Democratic People's Republic of Korea **Good quality a.k.a.:** a) Pak Chang-Ho b) Paek Ch'ang-Ho **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no:** 381420754, issued on 7 Dec. 2011 (Expires on 7 Dec. 2016) **National identification no:** na **Address:** na **Listed on:** 22 Jan. 2013 **Other information:** Senior official and head of the satellite control center of Korean Committee for Space Technology.

KPi.007 Name: 1: CHANG 2: MYONG-CHIN 3: na 4: na

Title: na **Designation:** General Manager of the Sohae Satellite Launching Station and head of launch center at which the 13 April and 12 December 2012 launches took place. **DOB:** a) 19 Feb. 1968 b) 1965 c) 1966 **POB:** na **Good quality a.k.a.:** Jang Myong-Jin **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no:** na **National identification no:** na **Address:** na **Listed on:** 22 Jan. 2013 **Other information:** General Manager of the Sohae Satellite Launching Station and head of launch center at which the 13 April and 12 December 2012 launches took place.

KPi.008 Name: 1: RA 2: KY'ONG-SU 3: na 4: na

Title: na **Designation:** Tanchon Commercial Bank (TCB) official **DOB:** 4 Jun. 1954 **POB:** na **Good quality a.k.a.:** a) Ra Kyung-Su b) Chang Myong Ho **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no:** number 645120196, issued in Democratic People's Republic of Korea **National identification no:** na **Address:** na **Listed on:** 22 Jan. 2013 (amended on 2 Mar. 2016) **Other information:** Ra Ky'ong-Su is a Tanchon Commercial Bank (TCB) official. In this capacity he has facilitated transactions for TCB. Tanchon was designated by the Committee in April 2009 as the main DPRK financial entity responsible for sales of conventional arms, ballistic missiles, and goods related to the assembly and manufacture of such weapons.

KPi.009 Name: 1: KIM 2: KWANG-IL 3: na 4: na

Title: na **Designation:** Tanchon Commercial Bank (TCB) official **DOB:** 1 Sep. 1969 **POB:** na **Good quality a.k.a.:** na **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no:** number PS381420397, issued in Democratic People's Republic of Korea **National identification no:** na **Address:** na **Listed on:** 22 Jan. 2013 **Other information:** Kim Kwang-il is a Tanchon Commercial Bank (TCB) official. In this capacity, he has facilitated transactions for TCB and the Korea Mining Development Trading Corporation (KOMID). Tanchon was designated by the Committee in April 2009 as the main DPRK financial entity responsible for sales of conventional arms, ballistic missiles, and goods related to the assembly and manufacture of such weapons. KOMID was designated by the Committee in April 2009 and is the DPRK's primary arms dealer and main exporter of goods and equipment related to ballistic missiles and conventional weapons.

KPi.010 Name: 1: YO'N 2: CHO'NG NAM 3: na 4: na

Title: na **Designation:** Chief Representative for the Korea Mining Development Trading Corporation (KOMID) **DOB:** na **POB:** na **Good quality a.k.a.:** na **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no:** na **National identification no:** na **Address:** na **Listed on:** 7 Mar. 2013 **Other information:** Chief Representative for the Korea Mining Development Trading Corporation (KOMID). The KOMID was designated by the Committee in April 2009 and is the DPRK's primary arms dealer and main exporter of goods and equipment related to ballistic missiles and conventional weapons.

KPi.011 Name: 1: KO 2: CH'O'L-CHAE 3: na 4: na

Title: na **Designation:** Deputy Chief Representative for the Korea Mining Development Trading Corporation (KOMID) **DOB:** na **POB:** na **Good quality a.k.a.:** na **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no:** na **National identification no:** na **Address:** na **Listed on:** 7 Mar. 2013 **Other information:** Deputy Chief Representative for the Korea Mining Development Trading Corporation (KOMID). The KOMID was designated by the Committee in April 2009 and is the DPRK's primary arms dealer and main exporter of goods and equipment related to ballistic missiles and conventional weapons.

KPi.012 Name: 1: MUN 2: CHO'NG-CH'O'L 3: na 4: na
Title: na **Designation:** Tanchon Commercial Bank (TCB) official **DOB:** na **POB:** na **Good quality a.k.a.:** na **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no.:** na **National identification no.:** na **Address:** na **Listed on:** 7 Mar. 2013 **Other information:** Mun Cho'ng-Ch'o'l is a TCB official. In this capacity he has facilitated transactions for TCB. Tanchon was designated by the Committee in April 2009 is the main DPRK financial entity for sales of conventional arms, ballistic missiles, and goods related to the assembly and manufacture of such weapons.

KPi.013 Name: 1: CHOE 2: CHUN-SIK 3: na 4: na
Title: na **Designation:** a) Director of the Second Academy of Natural Sciences (SANS) b) Former head of the DPRK's long-range missile program **DOB:** 12 Oct. 1954 **POB:** na **Good quality a.k.a.:** a) Choe Chun Sik b) Ch'oe Ch'un Sik **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no.:** na **National identification no.:** na **Address:** na **Listed on:** 2 Mar. 2016 **Other information:** Choe Chun-sik was the director of the Second Academy of Natural Sciences (SANS) and was the head of the DPRK's long-range missile program.

KPi.014 Name: 1: CHOE 2: SONG IL 3: na 4: na
Title: na **Designation:** Tanchon Commercial Bank Representative in Vietnam **DOB:** na **POB:** na **Good quality a.k.a.:** na **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no.:** a) 472320665 (Expires 26 Sep. 2017) b) 563120356 **National identification no.:** na **Address:** na **Listed on:** 2 Mar. 2016 **Other information:**

KPi.015 Name: 1: HYON 2: KWANG IL 3: na 4: na
Title: na **Designation:** Department Director for Scientific Development at the National Aerospace Development Administration **DOB:** 21 May 1961 **POB:** na **Good quality a.k.a.:** Hyon Gwang Il **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no.:** na **National identification no.:** na **Address:** na **Listed on:** 2 Mar. 2016 **Other information:**

KPi.016 Name: 1: JANG 2: BOM SU 3: na 4: na
Title: na **Designation:** Tanchon Commercial Bank Representative in Syria **DOB:** 15 Apr. 1957 **POB:** na **Good quality a.k.a.:** Jang Pom Su **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no.:** na **National identification no.:** na **Address:** na **Listed on:** 2 Mar. 2016 **Other information:**

KPi.017 Name: 1: JANG 2: YONG SON 3: na 4: na
Title: na **Designation:** Korea Mining Development Trading Corporation (KOMID) Representative in Iran **DOB:** 20 Feb. 1957 **POB:** na **Good quality a.k.a.:** na **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no.:** na **National identification no.:** na **Address:** na **Listed on:** 2 Mar. 2016 **Other information:**

KPi.018 Name: 1: JON 2: MYONG GUK 3: na 4: na
Title: na **Designation:** Tanchon Commercial Bank Representative in Syria **DOB:** 18 Oct. 1976 **POB:** na **Good quality a.k.a.:** Cho'n Myo'ng-kuk **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no.:** 4721202031 (Expires 21 Feb. 2017) **National identification no.:** na **Address:** na **Listed on:** 2 Mar. 2016 **Other information:**

KPi.019 Name: 1: KANG 2: MUN KIL 3: na 4: na
Title: na **Designation:** na **DOB:** na **POB:** na **Good quality a.k.a.:** Jiang Wen-ji **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no.:** PS 472330208 (Expires 4 Jul. 2017) **National identification no.:** na **Address:** na **Listed on:** 2 Mar. 2016 **Other information:** Kang Mun Kil has conducted nuclear procurement activities as a representative of Namchongang, also known as Namhung.

KPi.020 Name: 1: KANG 2: RYONG 3: na 4: na
Title: na **Designation:** Korea Mining Development Trading Corporation (KOMID) Representative in Syria **DOB:** 21 Aug. 1969 **POB:** na **Good quality a.k.a.:** na **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no.:** na **National identification no.:** na **Address:** na **Listed on:** 2 Mar. 2016 **Other information:**

KPi.021 Name: 1: KIM 2: JUNG JONG 3: na 4: na

Title: na **Designation:** Tanchon Commercial Bank Representative in Vietnam **DOB:** 7 Nov. 1966 **POB:** na **Good quality a.k.a.:** Kim Chung Chong **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no.:** a) 199421147 (Expired 29 Dec. 2014) b) 381110042 (Expired 25 Jan. 2016) c) 563210184 (Expires 18 Jun. 2018) **National identification no.:** na **Address:** na **Listed on:** 2 Mar. 2016 **Other information:**

KPi.022 Name: 1: KIM 2: KYU 3: na 4: na

Title: na **Designation:** Korea Mining Development Trading Corporation (KOMID) External Affairs Officer **DOB:** 30 Jul. 1968 **POB:** na **Good quality a.k.a.:** na **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no.:** na **National identification no.:** na **Address:** na **Listed on:** 2 Mar. 2016 **Other information:**

KPi.023 Name: 1: KIM 2: TONG MY'ONG 3: na 4: na

Title: na **Designation:** President of Tanchon Commercial Bank **DOB:** 1964 **POB:** na **Good quality a.k.a.:** a) Kim Chin-So'k b) Kim Tong-Myong c) Kim Jin-Sok d) Kim Hyok-Chol **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no.:** na **National identification no.:** na **Address:** na **Listed on:** 2 Mar. 2016 **Other information:** Kim Tong My'ong is the President of Tanchon Commercial Bank and has held various positions within Tanchon Commercial bank since at least 2002. He has also played a role in managing Amroggang's affairs.

KPi.024 Name: 1: KIM 2: YONG CHOL 3: na 4: na

Title: na **Designation:** KOMID Representative in Iran **DOB:** 18 Feb. 1962 **POB:** na **Good quality a.k.a.:** na **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no.:** na **National identification no.:** na **Address:** na **Listed on:** 2 Mar. 2016 **Other information:**

KPi.025 Name: 1: KO 2: TAE HUN 3: na 4: na

Title: na **Designation:** Tanchon Commercial Bank Representative **DOB:** 25 May 1972 **POB:** na **Good quality a.k.a.:** Kim Myong Gi **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no.:** 563120630 (Expires 20 Mar. 2018) **National identification no.:** na **Address:** na **Listed on:** 2 Mar. 2016 **Other information:**

KPi.026 Name: 1: RI 2: MAN GON 3: na 4: na

Title: na **Designation:** Minister of the Munitions Industry Department **DOB:** 29 Oct. 1945 **POB:** na **Good quality a.k.a.:** na **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no.:** PO381230469 (Expires 6 Apr. 2016) **National identification no.:** na **Address:** na **Listed on:** 2 Mar. 2016 **Other information:**

KPi.027 Name: 1: RYU 2: JIN 3: na 4: na

Title: na **Designation:** KOMID Representative in Syria **DOB:** 7 Aug. 1965 **POB:** na **Good quality a.k.a.:** na **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no.:** 563410081 **National identification no.:** na **Address:** na **Listed on:** 2 Mar. 2016 **Other information:**

KPi.028 Name: 1: YU 2: CHOL U 3: na 4: na

Title: na **Designation:** Director of the National Aerospace Development Administration **DOB:** na **POB:** na **Good quality a.k.a.:** na **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no.:** na **National identification no.:** na **Address:** na **Listed on:** 2 Mar. 2016 **Other information:**

KPi.029 Name: 1: PAK 2: CHUN 3: IL 4: na

Title: na **Designation:** Served as DPRK Ambassador to Egypt **DOB:** 28 Jul. 1954 **POB:** na **Good quality a.k.a.:** na **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no.:** 563410091 **National identification no.:** na **Address:** na **Listed on:** 30 Nov. 2016 **Other information:** Pak Chun Il has served as the DPRK Ambassador to Egypt and provides support to KOMID.

KPi.030 Name: 1: KIM 2: SONG 3: CHOL 4: na

Title: na **Designation:** na **DOB:** a) 26 Mar. 1968 b) 15 Oct. 1970 **POB:** na **Good quality a.k.a.:** Kim Hak Song **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no.:** a) 381420565 b) 654120219 **National identification no.:** na **Address:** na **Listed on:** 30 Nov. 2016 **Other information:** Kim Song

KPi.031 Name: 1: SON 2: JONG 3: HYOK 4: na

Title: na **Designation:** na **DOB:** 20 May 1980 **POB:** na **Good quality a.k.a.:** Son Min **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no:** na **National identification no:** na **Address:** na **Listed on:** 30 Nov. 2016 **Other information:** Son Jong Hyok is a KOMID official that has conducted business in Sudan on behalf of KOMID's interests.

KPi.032 Name: 1: KIM 2: SE 3: GON 4: na

Title: na **Designation:** na **DOB:** na **POB:** na **Good quality a.k.a.:** na **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no:** PD472310104 **National identification no:** na **Address:** na **Listed on:** 30 Nov. 2016 **Other information:** Kim Se Gon works on behalf of the Ministry of Atomic Energy Industry

KPi.033 Name: 1: RI 2: WON 3: HO 4: na

Title: na **Designation:** DPRK Ministry of State Security Official **DOB:** 17 Jul. 1964 **POB:** na **Good quality a.k.a.:** na **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no:** 381310014 **National identification no:** na **Address:** na **Listed on:** 30 Nov. 2016 **Other information:** Ri Won Ho is a DPRK Ministry of State Security Official stationed in Syria supporting KOMID.

KPi.034 Name: 1: JO 2: YONG 3: CHOL 4: na

Title: na **Designation:** DPRK Ministry of State Security Official **DOB:** 30 Sep. 1973 **POB:** na **Good quality a.k.a.:** Cho Yong Chol **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no:** na **National identification no:** na **Address:** na **Listed on:** 30 Nov. 2016 **Other information:** Jo Yong Chol is a DPRK Ministry of State Security Official stationed in Syria supporting KOMID.

KPi.035 Name: 1: KIM 2: CHOL 3: SAM 4: na

Title: na **Designation:** Representative for Daedong Credit Bank (DCB) **DOB:** 11 Mar. 1971 **POB:** na **Good quality a.k.a.:** na **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no:** na **National identification no:** na **Address:** na **Listed on:** 30 Nov. 2016 **Other information:** Kim Chol Sam is a representative for Daedong Credit Bank (DCB) who has been involved in managing transactions on behalf of DCB Finance Limited. As an overseas-based representative of DCB, it is suspected that Kim Chol Sam has facilitated transactions worth hundreds of thousands of dollars and likely managed millions of dollars in DPRK related accounts with potential links to nuclear/missile programs.

KPi.036 Name: 1: KIM 2: SOK 3: CHOL 4: na

Title: na **Designation:** a) Acted as the DPRK Ambassador to Burma b) KOMID facilitator **DOB:** 8 May 1955 **POB:** na **Good quality a.k.a.:** na **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no:** 472310082 **National identification no:** na **Address:** na **Listed on:** 30 Nov. 2016 **Other information:** Kim Sok Chol acted as the DPRK Ambassador to Burma and he operates as a KOMID facilitator. He was paid by KOMID for his assistance and arranges meetings on behalf of KOMID, including a meeting between KOMID and Burmese defense related persons to discuss financial matters.

KPi.037 Name: 1: CHANG 2: CHANG 3: HA 4: na

Title: na **Designation:** President of the Second Academy of Natural Sciences (SANS) **DOB:** 10 Jan. 1964 **POB:** na **Good quality a.k.a.:** Jang Chang Ha **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no:** na **National identification no:** na **Address:** na **Listed on:** 30 Nov. 2016 **Other information:**

KPi.038 Name: 1: CHO 2: CHUN 3: RYONG 4: na

Title: na **Designation:** Chairman of the Second Economic Committee (SEC) **DOB:** 4 Apr. 1960 **POB:** na **Good quality a.k.a.:** Jo Chun Ryong **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no:** na **National identification no:** na **Address:** na **Listed on:** 30 Nov. 2016 **Other information:**

KPi.039 Name: 1: SON 2: MUN 3: SAN 4: na

Title: na **Designation:** Director-General of the External Affairs Bureau of the General Bureau of Atomic Energy (GBAE) **DOB:** 23 Jan. 1951 **POB:** na **Good quality a.k.a.:** na **Low quality a.k.a.:** na **Nationality:** Democratic People's Republic of Korea **Passport no:** na **National identification no:** na **Address:** na **Listed on:** 30 Nov. 2016 **Other information:**

B. Entities and other groups

KPe.001 Name: KOREA MINING DEVELOPMENT TRADING CORPORATION

A.k.a.: a) CHANGGWANG SINYONG CORPORATION b) EXTERNAL TECHNOLOGY GENERAL CORPORATION c) DPRKN MINING DEVELOPMENT TRADING COOPERATION d) "KOMID" **F.k.a.:** na **Address:** Central District, Pyongyang, Democratic People's Republic of Korea **Listed on:** 24 Apr. 2009 **Other information:** Primary arms dealer and main exporter of goods and equipment related to ballistic missiles and conventional weapons.

KPe.002 Name: KOREA RYONBONG GENERAL CORPORATION

A.k.a.: KOREA YONBONG GENERAL CORPORATION **F.k.a.:** LYONGAKSAN GENERAL TRADING CORPORATION **Address:** a) Pot'onggang District, Pyongyang, Democratic People's Republic of Korea b) Rakwon-dong, Pothonggang District, Pyongyang, Democratic People's Republic of Korea **Listed on:** 24 Apr. 2009 **Other information:** Defense conglomerate specializing in acquisition for DPRK defense industries and support to that country's military-related sales.

KPe.003 Name: TANCHON COMMERCIAL BANK

A.k.a.: na **F.k.a.:** a) CHANGGWANG CREDIT BANK b) KOREA CHANGGWANG CREDIT BANK **Address:** Saemul 1-Dong Pyongchon District, Pyongyang, Democratic People's Republic of Korea **Listed on:** 24 Apr. 2009 **Other information:** Main DPRK financial entity for sales of conventional arms, ballistic missiles, and goods related to the assembly and manufacture of such weapons.

KPe.004 Name: NAMCHONGANG TRADING CORPORATION

A.k.a.: a) NCG b) NAMCHONGANG TRADING c) NAM CHON GANG CORPORATION d) NOMCHONGANG TRADING CO. e) NAM CHONG GAN TRADING CORPORATION f) Namhung Trading Corporation **F.k.a.:** na **Address:** Pyongyang, Democratic People's Republic of Korea **Listed on:** 16 Jul. 2009 (amended on 2 Mar. 2016) **Other information:** Namchongang is a DPRK trading company subordinate to the General Bureau of Atomic Energy (GBAE). Namchongang has been involved in the procurement of Japanese origin vacuum pumps that were identified at a DPRK nuclear facility, as well as nuclear-related procurement associated with a German individual. It has further been involved in the purchase of aluminum tubes and other equipment specifically suitable for a uranium enrichment program from the late 1990s. Its representative is a former diplomat who served as DPRK's representative for the IAEA inspection of the Yongbyon nuclear facilities in 2007. Namchongang's proliferation activities are of grave concern given the DPRK's past proliferation activities.

KPe.005 Name: HONG KONG ELECTRONICS

A.k.a.: HONG KONG ELECTRONICS KISH CO. **F.k.a.:** na **Address:** Sanaee Street, Kish Island, Iran **Listed on:** 16 Jul. 2009 **Other information:** Owned or controlled by, or acts or purports to act for or on behalf of Tanchon Commercial Bank and KOMID. Hong Kong Electronics has transferred millions of dollars of proliferation-related funds on behalf of Tanchon Commercial Bank and KOMID (both designated by the Committee in April 2009) since 2007. Hong Kong Electronics has facilitated the movement of money from Iran to the DPRK on behalf of KOMID.

KPe.006 Name: KOREA HYOKSIN TRADING CORPORATION

A.k.a.: KOREA HYOKSIN EXPORT AND IMPORT CORPORATION **F.k.a.:** na **Address:** Rakwon-dong, Pothonggang District, Pyongyang, Democratic People's Republic of Korea **Listed on:** 16 Jul. 2009 **Other information:** A DPRK company based in Pyongyang that is subordinate to Korea Ryonbong General Corporation (designated by the Committee in April 2009) and is involved in the development of WMD.

KPe.007 Name: GENERAL BUREAU OF ATOMIC ENERGY (GBAE)

A.k.a.: General Department of Atomic Energy (GDAE) **F.k.a.:** na **Address:** Haeudong, Pyongchen District, Pyongyang, Democratic People's Republic of Korea **Listed on:** 16 Jul. 2009 **Other information:** The GBAE is responsible for the DPRK's nuclear program, which includes the Yongbyon Nuclear Research Center and its 5 MWe (25 MWt) plutonium production research reactor, as well as its fuel fabrication and reprocessing facilities. The GBAE has held nuclear-related meetings and discussions with the International Atomic Energy Agency. GBAE is the primary DPRK government agency that oversees nuclear programs, including the operation of the Yongbyon Nuclear Research Center.

KPe.008 Name: KOREAN TANGUN TRADING CORPORATION**A.k.a.:** na **F.k.a.:** na **Address:** Pyongyang, Democratic People's Republic of Korea **Listed on:** 16 Jul. 2009**Other information:** Korea Tangun Trading Corporation is subordinate to DPRK's Second Academy of Natural Sciences and is primarily responsible for the procurement of commodities and technologies to support DPRK's defense research and development programs, including, but not limited to, WMD and delivery system programs and procurement, including materials that are controlled or prohibited under relevant multilateral control regimes.**KPe.009 Name:** AMROGGANG DEVELOPMENT BANKING CORPORATION**A.k.a.:** a) AMROGGANG Development Bank b) Amnokkang Development Bank **F.k.a.:** na **Address:** Tongan-**Other information:** Amroggang, which was established in 2006, is a Tanchon Commercial Bank-related company managed by Tanchon officials. Tanchon plays a role in financing KOMID's sales of ballistic missiles and has also been involved in ballistic missile transactions from KOMID to Iran's Shahid Hemmat Industrial Group (SHIG). Tanchon Commercial Bank was designated by the Committee in April 2009 and is the main DPRK financial entity for sales of conventional arms, ballistic missiles, and goods related to the assembly and manufacture of such weapons. KOMID was designated by the Committee in April 2009 and is the DPRK's primary arms dealer and main exporter of goods and equipment related to ballistic missiles and conventional weapons. The Security Council designated SHIG in resolution 1737 (2006) as an entity involved in Iran's ballistic missile programme.**KPe.010 Name:** GREEN PINE ASSOCIATED CORPORATION**A.k.a.:** a) CHO'NGSONG UNITED TRADING COMPANY b) CHONGSONG YONHAP c) CH'O'NGSONG YO'NHAP d) CHOSUN CHAWO'N KAEBAL T'UJA HOESA e) JINDALLAE f) KU'MHAERYONG COMPANY LTD. g) NATURAL RESOURCES DEVELOPMENT AND INVESTMENT CORPORATION h) SAEINGP'IL COMPANY **F.k.a.:** na**Address:** a) c/o Reconnaissance General Bureau Headquarters, Hyongjesan-Guyok, Pyongyang, Democratic People's Republic of Korea b) Nungrado, Pyongyang, Democratic People's Republic of Korea **Listed on:** 2 May 2012 **Other information:** Green Pine Associated Corporation ("Green Pine") has taken over many of the activities of the Korea Mining Development Trading Corporation (KOMID). KOMID was designated by the Committee in April 2009 and is the DPRK's primary arms dealer and main exporter of goods and equipment related to ballistic missiles and conventional weapons. Green Pine is also responsible for approximately half of the arms and related materiel exported by the DPRK. Green Pine has been identified for sanctions for exporting arms or related material from North Korea. Green Pine specializes in the production of maritime military craft and armaments, such as submarines, military boats and missile systems, and has exported torpedoes and technical assistance to Iranian defence-related firms.**KPe.011 Name:** KOREA HEUNGJIN TRADING COMPANY**A.k.a.:** a) Hunjin TRADING Co. b) Korea Henjin Trading Co. c) Korea Hengjin Trading Company **F.k.a.:** na**Address:** Pyongyang, Democratic People's Republic of Korea **Listed on:** 2 May 2012 **Other information:** The Korea Heungjin Trading Company is used by KOMID for trading purposes. We suspect it has been involved in supplying missile-related goods to Iran's Shahid Hemmat Industrial Group (SHIG). Heungjin has been associated with KOMID, and, more specifically, KOMID's procurement office. Heungjin has been used to procure an advanced digital controller with applications in missile design. KOMID was designated by the Committee in April 2009 and is the DPRK's primary arms dealer and main exporter of goods and equipment related to ballistic missiles and conventional weapons. The Security Council designated SHIG in resolution 1737 (2006) as an entity involved in Iran's ballistic missile programme.**KPe.012 Name:** KOREAN COMMITTEE FOR SPACE TECHNOLOGY**A.k.a.:** a) DPRK Committee for Space Technology b) Department of Space Technology of the DPRK c) Committee for Space Technology d) KCST **F.k.a.:** na **Address:** Pyongyang, Democratic People's Republic of Korea **Listed on:** 22 Jan. 2013 **Other information:** The Korean Committee for Space Technology (KCST) orchestrated the DPRK's launches on 13 April 2012 and 12 December 2012 via the satellite control center and Sohae launch area.

KPe.013 Name: BANK OF EAST LAND

A.k.a.: a) Dongbang BANK b) TONGBANG U'NHAENG c) TONGBANG BANK **F.k.a.:** na **Address:** PO Box 32, BEL Building, Jonseung-Dung, Moranbong District, Pyongyang, Democratic People's Republic of Korea **Listed on:** 22 Jan. 2013 **Other information:** DPRK financial institution Bank of East Land facilitates weapons-related transactions for, and other support to, arms manufacturer and exporter Green Pine Associated Corporation (Green Pine). Bank of East Land has actively worked with Green Pine to transfer funds in a manner that circumvents sanctions. In 2007 and 2008, Bank of East Land facilitated transactions involving Green Pine and Iranian financial institutions, including Bank Melli and Bank Sepah. The Security Council designated Bank Sepah in resolution 1747 (2007) for providing support to Iran's ballistic missile program. Green Pine was designated by the Committee in April 2012.

KPe.014 Name: KOREA KUMRYONG TRADING CORPORATION

A.k.a.: na **F.k.a.:** na **Address:** na **Listed on:** 22 Jan. 2013 **Other information:** Used as an alias by the Korea Mining Development Trading Corporation (KOMID) to carry out procurement activities. KOMID was designated by the Committee in April 2009 and is the DPRK's primary arms dealer and main exporter of goods and equipment related to ballistic missiles and conventional weapons.

KPe.015 Name: TOSONG TECHNOLOGY TRADING CORPORATION

A.k.a.: na **F.k.a.:** na **Address:** Pyongyang, Democratic People's Republic of Korea **Listed on:** 22 Jan. 2013 **Other information:** The Korea Mining Development Corporation (KOMID) is the parent company of Tosong Technology Trading Corporation. KOMID was designated by the Committee in April 2009 and is the DPRK's primary arms dealer and main exporter of goods and equipment related to ballistic missiles and conventional weapons.

KPe.016 Name: KOREA RYONHA MACHINERY JOINT VENTURE CORPORATION

A.k.a.: a) Chosun Yunha Machinery Joint Operation Company b) Korea Ryenha Machinery J/V Corporation c) Ryonha Machinery Joint Venture Corporation d) Ryonha Machinery Corporation e) Ryonha Machinery f) Ryonha Machine Tool g) Ryonha Machine Tool Corporation h) Ryonha Machinery Corp. i) Ryonhwa Machinery Joint Venture Corporation j) Ryonhwa Machinery JV k) Huichon Ryonha Machinery General Plant l) Unsan m) Unsan Solid Tools n) Millim Technology Company o) 朝鲜联合机械贸易会社 **F.k.a.:** na **Address:** a) Tongan-dong, Central District, Pyongyang, Democratic People's Republic of Korea b) Mangungdae-gu, Pyongyang, Democratic People's Republic of Korea c) Mangyongdae District, Pyongyang, Democratic People's Republic of Korea **Listed on:** 22 Jan. 2013 (amended on 7 Jan. 2014, 2 Apr. 2014) **Other information:** Korea Ryonbong General Corporation is the parent company of Korea Ryonha Machinery Joint Venture Corporation. Korea Ryonbong General Corporation was designated by the Committee in April 2009 and is a defense conglomerate specializing in acquisition for DPRK defense industries and support to that country's military-related sales. Email addresses: ryonha@silibank.com; sjc-117@hotmail.com; and millim@silibank.com. Telephone numbers: 850-2-18111; 850-2-18111-8642; and 850 2 18111-3818642. Facsimile number: 850-2-381-4410

KPe.017 Name: LEADER (HONG KONG) INTERNATIONAL

A.k.a.: a) Leader International Trading Limited b) Leader (Hong Kong) International Trading Limited **F.k.a.:** na **Address:** LM-873, RM B, 14/F, Wah Hen Commercial Centre, 383 Hennessy Road, Wanchai, Hong Kong Special Administrative Region **Listed on:** 22 Jan. 2013 (amended on 20 Jun. 2014) **Other information:** Facilitates shipments on behalf of the Korea Mining Development Trading Corporation (KOMID). KOMID was designated by the Committee in April 2009 and is the DPRK's primary arms dealer and main exporter of goods and equipment related to ballistic missiles and conventional weapons. Hong Kong company registration number 1177053.

KPe.018 Name: SECOND ACADEMY OF NATURAL SCIENCES

A.k.a.: a) 2ND ACADEMY OF NATURAL SCIENCES b) CHE 2 CHAYON KWAHAKWON c) ACADEMY OF NATURAL SCIENCES d) CHAYON KWAHAK-WON e) NATIONAL DEFENSE ACADEMY f) KUKPANG KWAHAK-WON g) SECOND ACADEMY OF NATURAL SCIENCES RESEARCH INSTITUTE h) SANSRI **F.k.a.:** na **Address:** Pyongyang, Democratic People's Republic of Korea **Listed on:** 7 Mar. 2013 **Other information:** The Second Academy of Natural Sciences is a national-level organization responsible for research and development of the DPRK's advanced weapons systems, including missiles and probably nuclear weapons. The Second Academy of Natural Sciences uses a number of subordinate organizations to obtain technology, equipment, and information from overseas, including Tangun Trading Corporation, for use in the DPRK's missile and probably nuclear weapons programs. Tangun Trading Corporation was designated by the Committee in July 2009 and is primarily responsible for the procurement of commodities and technologies to support DPRK's defense research and development programs, including, but not limited to, weapons of mass destruction and delivery system programs and procurement, including materials that are controlled or prohibited under relevant multilateral control regimes.

KPe.019 Name: KOREA COMPLEX EQUIPMENT IMPORT CORPORATION

A.k.a.: na **F.k.a.:** na **Address:** Rakwon-dong, Pothonggang District, Pyongyang, Democratic People's Republic of Korea **Listed on:** 7 Mar. 2013 **Other information:** Korea Ryonbong General Corporation is the parent company of Korea Complex Equipment Import Corporation. Korea Ryonbong General Corporation was designated by the Committee in April 2009 and is a defense conglomerate specializing in acquisition for DPRK defense industries and support to that country's military-related sales.

KPe.020 Name: OCEAN MARITIME MANAGEMENT COMPANY, LIMITED (OMM)

A.k.a.: na **F.k.a.:** na **Address:** a) Donghung Dong, Central District, PO Box 120, Pyongyang, Democratic People's Republic of Korea b) Dongheung-dong Changgwang Street, Chung-Ku, PO Box 125, Pyongyang, Democratic People's Republic of Korea **Listed on:** 28 Jul. 2014 **Other information:** Ocean Maritime Management Company, Limited is the operator/manager of the vessel Chong Chon Gang. It played a key role in arranging the shipment of concealed cargo of arms and related materiel from Cuba to the DPRK in July 2013. As such, Ocean Maritime Management Company, Limited contributed to activities prohibited by the resolutions, namely the arms embargo imposed by resolution 1718 (2006), as modified by resolution 1874 (2009), and contributed to the evasion of the measures imposed by these resolutions. International Maritime Organization (IMO) Number: 1790183.

KPe.021 Name: ACADEMY OF NATIONAL DEFENSE SCIENCE

A.k.a.: na **F.k.a.:** na **Address:** Pyongyang, Democratic People's Republic of Korea **Listed on:** 2 Mar. 2016 **Other information:** The Academy of National Defense Science is involved in the DPRK's efforts to advance the development of its ballistic missile and nuclear weapons programs.

KPe.022 Name: CHONGCHONGANG SHIPPING COMPANY

A.k.a.: Chong Chon Gang Shipping Co. Ltd. **F.k.a.:** na **Address:** a) 817 Haeun, Donghung-dong, Central District, Pyongyang, Democratic People's Republic of Korea b) 817, Haeum, Tonghun-dong, Chung-gu, Pyongyang, Democratic People's Republic of Korea **Listed on:** 2 Mar. 2016 **Other information:** IMO Number: 5342883. The Chongchongang Shipping Company, through its vessel, the Chong Chon Gang, attempted to directly import the illicit shipment of conventional weapons and arms to the DPRK in July 2013.

KPe.023 Name: DAEDONG CREDIT BANK (DCB)

A.k.a.: a) DCB b) Taedong Credit Bank **F.k.a.:** na **Address:** a) Suite 401, Potonggang Hotel, Ansan-Dong, Pyongchon District, Pyongyang, Democratic People's Republic of Korea b) Ansan-dong, Botonggang Hotel, Pongchon, Pyongyang, Democratic People's Republic of Korea **Listed on:** 2 Mar. 2016 **Other information:** SWIFT: DCBK KKPY. Daedong Credit Bank has provided financial services to the Korea Mining Development Trading Corporation (KOMID) and Tanchon Commercial Bank. Since at least 2007, DCB has facilitated hundreds of financial transactions worth millions of dollars on behalf of KOMID and Tanchon Commercial Bank. In some cases, DCB has knowingly facilitated transactions by using deceptive financial practices.

KPe.024 Name: HESONG TRADING COMPANY

A.k.a.: na **F.k.a.:** na **Address:** Pyongyang, Democratic People's Republic of Korea **Listed on:** 2 Mar. 2016 **Other information:** The Korea Mining Development Trading Corporation (KOMID) is the parent company of Hesong Trading Corporation.

KPe.025 Name: KOREA KWANGSON BANKING CORPORATION (KKBC)

A.k.a.: KKBC **F.k.a.:** na **Address:** Jungson-dong, Sungri Street, Central District, Pyongyang, Democratic People's Republic of Korea **Listed on:** 2 Mar. 2016 **Other information:** KKBC provides financial services in support to Tanchon Commercial Bank and Korea Hyoksin Trading Corporation, a subordinate of the Korea Ryonbong General Corporation. Tanchon Commercial Bank has used KKBC to facilitate funds transfers likely amounting to millions of dollars, including transfers involving Korea Mining Development Corporation related funds.

KPe.026 Name: KOREA KWANGSONG TRADING CORPORATION

A.k.a.: na **F.k.a.:** na **Address:** Rakwon-dong, Pothonggang District, Pyongyang, Democratic People's Republic of Korea **Listed on:** 2 Mar. 2016 **Other information:** The Korea Ryongbong General Corporation is the parent company of Korea Kwangsong Trading Corporation.

KPe.027 Name: MINISTRY OF ATOMIC ENERGY INDUSTRY

A.k.a.: MAEI **F.k.a.:** na **Address:** Haeun-2-dong, Pyongchon District, Pyongyang, Democratic People's Republic of Korea **Listed on:** 2 Mar. 2016 **Other information:** The Ministry of Atomic Energy Industry was created in 2013 for the purpose of modernizing the DPRK's atomic energy industry to increase the production of nuclear materials, improve their quality, and further develop an independent DPRK nuclear industry. As such, the MAEI is known to be a critical player in the DPRK's development of nuclear weapons and is in charge of day-to-day operation of the country's nuclear weapons program, and under it are other nuclear-related organizations. Under this ministry are a number of nuclear-related organizations and research centers, as well as two committees: an Isotope Application Committee and a Nuclear Energy Committee. The MAEI also directs a nuclear research center at Yongbyun, the site of the DPRK's known plutonium facilities. Furthermore, in the 2015 Panel of Experts (POE) report, the POE stated that Ri Je-son, a former director of the GBAE who was designated by the Committee established pursuant to resolution 1718 (2006) in 2009 for engagement in or support for nuclear related programs, was appointed as head of the MAEI on April 9, 2014.

KPe.028 Name: MUNITIONS INDUSTRY DEPARTMENT

A.k.a.: a) Military Supplies Industry Department b) MID **F.k.a.:** na **Address:** Pyongyang, Democratic People's Republic of Korea **Listed on:** 2 Mar. 2016 **Other information:** The Munitions Industry Department is involved in key aspects of the DPRK's missile program. MID is responsible for overseeing the development of the DPRK's ballistic missiles, including the Taepo Dong-2. The MID oversees the DPRK's weapons production and R&D programs, including the DPRK's ballistic missile program. The Second Economic Committee and the Second Academy of Natural Sciences – also designated in August 2010 – are subordinate to the MID. The MID in recent years has worked to develop the KN08 road-mobile ICBM.

KPe.029 Name: NATIONAL AEROSPACE DEVELOPMENT ADMINISTRATION

A.k.a.: NADA **F.k.a.:** na **Address:** Democratic People's Republic of Korea **Listed on:** 2 Mar. 2016 **Other information:** NADA is involved in the DPRK's development of space science and technology, including satellite launches and carrier rockets.

KPe.030 Name: OFFICE 39

A.k.a.: a) Office #39 b) Office No. 39 c) Bureau 39 d) Central Committee Bureau 39 e) Third Floor f) Division 39 **F.k.a.:** na **Address:** Democratic People's Republic of Korea **Listed on:** 2 Mar. 2016 **Other information:** DPRK government entity

KPe.031 Name: RECONNAISSANCE GENERAL BUREAU

A.k.a.: a) Chongch'al Ch'ongguk b) KPA Unit 586 c) RGB **F.k.a.:** na **Address:** a) Hyongjesan-Guyok, Pyongyang, Democratic People's Republic of Korea b) Nungrado, Pyongyang, Democratic People's Republic of Korea **Listed on:** 2 Mar. 2016 **Other information:** The Reconnaissance General Bureau is the DPRK's premiere intelligence organization, created in early 2009 by the merger of existing intelligence organizations from the Korean Workers' Party, the Operations Department and Office 35, and the Reconnaissance Bureau of the Korean People's Army. The Reconnaissance General Bureau trades in conventional arms and controls the DPRK conventional arms firm Green Pine Associated Corporation.

KPe.032 Name: SECOND ECONOMIC COMMITTEE

A.k.a.: na **F.k.a.:** na **Address:** Kangdong, Democratic People's Republic of Korea **Listed on:** 2 Mar. 2016 **Other information:** The Second Economic Committee is involved in key aspects of the DPRK's missile program. The Second Economic Committee is responsible for overseeing the production of the DPRK's ballistic missiles, and directs the activities of KOMID.

KPe.033 Name: KOREA UNITED DEVELOPMENT BANK

A.k.a.: na **F.k.a.:** na **Address:** Pyongyang, Democratic People's Republic of Korea **Listed on:** 30 Nov. 2016 **Other information:** Korea United Development Bank operates in the financial services industry of the DPRK economy. SWIFT/BIC: KUDBKPPY

KPe.034 Name: ILSIM INTERNATIONAL BANK

A.k.a.: na **F.k.a.:** na **Address:** Pyongyang, Democratic People's Republic of Korea **Listed on:** 30 Nov. 2016 **Other information:** Ilsim International Bank is affiliated with the DPRK military and has a close relationship with Korea Kwangson Banking Corporation (KKBC). Ilsim International Bank has attempted to evade United Nations sanctions. SWIFT: ILSIKPPY

KPe.035 Name: KOREA DAESONG BANK

A.k.a.: a) Choson Taesong Unhaeng b) Taesong Bank **F.k.a.:** na **Address:** Segori-dong, Gyongheung St. Potonggang District, Pyongyang, Democratic People's Republic of Korea **Listed on:** 30 Nov. 2016 **Other information:** Daesong Bank is owned and controlled by Office 39 of the Korea Workers' Party. SWIFT/BIC: KDBKKPPY

KPe.036 Name: SINGWANG ECONOMICS AND TRADING GENERAL CORPORATION

A.k.a.: na **F.k.a.:** na **Address:** Democratic People's Republic of Korea **Listed on:** 30 Nov. 2016 **Other information:** Singwang Economics and Trading General Corporation is a DPRK firm for trading in coal. DPRK generates a significant share of the money for its nuclear and ballistic missile programs by mining natural resources and selling those resources abroad.

KPe.037 Name: KOREA FOREIGN TECHNICAL TRADE CENTER

A.k.a.: na **F.k.a.:** na **Address:** Democratic People's Republic of Korea **Listed on:** 30 Nov. 2016 **Other information:** Korea Foreign Technical Trade Center is a DPRK firm trading in coal. DPRK generates a significant share of the funds needed to finance its nuclear and ballistic missile programs by mining natural resources and selling those resources abroad.

KPe.038 Name: KOREA PUGANG TRADING CORPORATION

A.k.a.: na **F.k.a.:** na **Address:** Rakwon-dong, Pothonggang District, Pyongyang, Democratic People's Republic of Korea **Listed on:** 30 Nov. 2016 **Other information:** Korea Pugang Trading Corporation is owned by the Korea Ryonbong General Corporation, DPRK's defense conglomerate specializing in acquisition for DPRK defense industries and support to Pyongyang's military related sales.

KPe.039 Name: KOREA INTERNATIONAL CHEMICAL JOINT VENTURE COMPANY

A.k.a.: a) Chosun International Chemicals Joint Operation Company b) Chosun International Chemicals Joint Operation Company c) International Chemical Joint Venture Company **F.k.a.:** na **Address:** a) Hamhung, South Hamgyong Province, Democratic People's Republic of Korea b) Man gyongdae-kuyok, Pyongyang, Democratic People's Republic of Korea c) Mangyungdae-gu, Pyongyang, Democratic People's Republic of Korea **Listed on:** 30 Nov. 2016 **Other information:** Korea International Chemical Joint Venture Company is a subsidiary of Korea Ryonbong General Corporation – DPRK's defense conglomerate specializing in acquisition for DPRK defense industries and support to Pyongyang's military related sales – and has engaged in proliferation-related transactions.

KPe.040 Name: DCB FINANCE LIMITED

A.k.a.: na **F.k.a.:** na **Address:** a) Akara Building, 24 de Castro Street, Wickhams Cay I, Road Town, Tortola, British Virgin Islands b) Dalian, China **Listed on:** 30 Nov. 2016 **Other information:** DCB Finance Limited is a front company for Daedong Credit Bank (DCB), a listed entity.

KPe.041 Name: KOREA TAESONG TRADING COMPANY

A.k.a.: na **F.k.a.:** na **Address:** Pyongyang, Democratic People's Republic of Korea **Listed on:** 30 Nov. 2016 **Other information:** Korea Taesong Trading Company has acted on behalf of KOMID in dealings with Syria.

KPe.042 Name: KOREA DAESONG GENERAL TRADING CORPORATION

A.k.a.: a) Daesong Trading b) Daesong Trading Company c) Korea Daesong Trading Company d) Korea Daesong Trading Corporation **F.k.a.:** na **Address:** Pulgan Gori Dong 1, Potonggang District, Pyongyang City, Democratic People's Republic of Korea **Listed on:** 30 Nov. 2016 **Other information:** Korea Daesong General Trading Corporation is affiliated with Office 39 through minerals (gold) exports, metals, machinery, agricultural products, ginseng, jewelry, and light industry products.

Last updated 17 September 2013

ADDITIONAL ITEMS AND LUXURY GOODS¹

A) Items

1. “Graphite designed or specified for use in Electrical Discharge Machining (EDM) machines”
2. “Para-aramid fiber (Kevlar and other Kevlar-like), filament and tape”
3. Perfluorinated Lubricants
They can be used for lubricating vacuum pump and compressor bearings. They have a low vapor pressure, are resistant to uranium hexafluoride (UF₆), the gaseous uranium compound used in the gas centrifuge process, and are used for pumping fluorine.
4. UF₆ Corrosion Resistant Bellow-sealed Valves
They can be used in uranium enrichment facilities (such as gas centrifuge and gaseous diffusion plants), in facilities that produce uranium hexafluoride (UF₆), the gaseous uranium compound used in the gas centrifuge process, in fuel fabrication facilities and in facilities handling tritium.
5. Special corrosion resistant steels - limited to steels resistant to Inhibited Red Fuming Nitric Acid (IRFNA) or nitric acid, such as nitrogen stabilized duplex stainless steel (N-DSS).
6. Ultra high-temperature ceramic composite materials in solid form (i.e. blocks, cylinders, tubes or ingots) in any of the following form factors:
 - a. Cylinders having a diameter of 120 mm or greater and a length of 50 mm or greater;
 - b. Tubes having an inner diameter of 65 mm or greater and a wall thickness of 25 mm or greater and a length of 50 mm or greater; or
 - c. Blocks having a size of 120 mm x 120 mm x 50 mm or greater.
7. Pyrotechnically Actuated Valves.
8. Measurement and control equipment usable for wind tunnels (balance, thermal stream measurement, flow control).
9. Sodium Perchlorate.
10. Vacuum pumps with a manufacturer’s specified maximum flow-rate greater than 1 m³/h (under standard temperature and pressure conditions), casings (pump bodies), preformed casing-liners, impellers, rotors, and jet pump nozzles designed for such pumps, in which all surfaces that come into direct contact with the chemicals being processed are made from controlled materials.²

¹ Committee decision of 16 July 2009 (S/2009/364) and resolution 2094 (2013).

² “Controlled materials” are as defined by S/2006/853 (see “Pumps”, pages 7 to 8) and include: “(a) nickel or alloys with more than 40% nickel by weight; (b) alloys with more than 25% nickel and 20% chromium by weight; (c) fluoropolymers; (d) glass or glass-lined (including vitrified or enamelled coating); (e) graphite; (f) tantalum or tantalum alloys; (g) titanium or titanium alloys; (h) zirconium or zirconium alloys; (i) ceramics; or (j) ferrosilicon.”

Last updated 17 September 2013

B) Luxury Goods³

1. Jewelry:
 - a) jewelry with pearls
 - b) gems
 - c) precious and semi-precious stones (including diamonds, sapphires, rubies, and emeralds)
 - d) jewelry of precious metal or of metal clad with precious metal
2. Transportation items, as follows:
 - a) Yachts
 - b) Luxury automobiles (and motor vehicles): automobiles and other motor vehicles to transport people (other than public transport), including station wagons
 - c) Racing cars

³ Pursuant to paragraph 23 of resolution 2094 (2013), the term "luxury goods" in paragraph 8(a)(iii) of resolution 1718 (2006) includes, but is not limited to, the items listed above.

United Nations

S/2014/253

**Security Council**Distr.: General
8 April 2014

Original: English

**Letter dated 8 April 2014 from the Chair of the Security Council
Committee established pursuant to resolution 1718 (2006)
addressed to the President**

On behalf of the Committee established pursuant to resolution 1718 (2006), I have the honour to transmit herewith the report of the Committee dated 2 April 2014 (see annex), submitted in accordance with paragraph 21 of resolution 2094 (2013) and presidential statement S/PRST/2012/13 of 16 April 2012.

I would appreciate it if the present letter and its annex were brought to the attention of the members of the Security Council and issued as a document of the Council.

(Signed) Sylvie Lucas
Chair

Security Council Committee established pursuant to
resolution 1718 (2006)

14-29802 (E) 140514

Please recycle 

S/2014/253

Annex**Report of the Security Council Committee established pursuant to resolution 1718 (2006) prepared in accordance with paragraph 21 of resolution 2094 (2013) and presidential statement S/PRST/2012/13**

On 16 April 2012, by presidential statement S/PRST/2012/13, the Security Council directed the Committee established pursuant to resolution 1718 (2006) to, among other things, update on an annual basis the consolidated list of individuals and entities which are subject to the assets freeze and/or travel ban. The list was last updated on 31 December 2013.

In addition, the Security Council, in paragraph 21 of resolution 2094 (2013), directed the Committee to review and update the items contained in the lists specified in paragraph 5 (b) of resolution 2087 (2013), namely INFCIRC/254/Rev.11/Part 1 and INFCIRC/254/Rev.8/Part 2 (nuclear-related items) as well as document S/2012/947 (ballistic missile-related items), no later than 7 March 2014 and on an annual basis thereafter.

In order to fulfil these tasks, the Committee held informal consultations on 24 January and 24 February 2014. The Chair of the Committee also sent a note verbale to all Member States requesting them to provide additional information to update these lists.

On 2 April 2014, the Committee acted in line with the Security Council's directive and approved the following:

A. Update to the identifying information contained in the Committee's consolidated list of individuals and entities

The Committee adds the name “朝鲜联合机械贸易会社” to the list of aliases used by Korea Ryonha Machinery Joint Venture Corporation.

B. Update to the items contained in the lists specified in paragraph 5 (b) of resolution 2087 (2013)

The Committee determines that the list of items in INFCIRC/254/Rev.11/Part 1 and INFCIRC/254/Rev.8/Part 2 is superseded by the list of items in INFCIRC/254/Rev.12/Part 1 and INFCIRC/254/Rev.9/Part 2. The list of items contained in INFCIRC/254/Rev.12/Part 1 and INFCIRC/254/Rev.9/Part 2 shall thus be subject to the measures imposed in paragraphs 8 (a), (b) and (c) of resolution 1718 (2006).

The Committee also determines that the items, materials, equipment, goods and technology related to ballistic missile programmes in document S/2012/947 is superseded by the list of items attached hereto. The attached list of items shall thus be subject to the measures imposed in paragraphs 8 (a), (b) and (c) of resolution 1718 (2006).

Items, materials, equipment, goods and technology related to ballistic missile programmes

The changes to document S/2012/947 are shown in bold in the following items: Introduction (d): General Software Note, definitions of “payload” for space launch vehicles, 2.A.1.c. and Note to 2.A.1.c., 2.D.6. Note 1, 3.A.1.a.2., 3.A.5., 3.A.9., 4.B.3.a. and corresponding Note, 4.B.3.d., 4.D.1., 6.D.1., Technical Note 4 to 9.A.3., 9.B.1., 12.A.3., 15.B.4.a.2. and 20.A.1.b.

Contents

1. INTRODUCTION

- (a) Category I and Category II items
- (b) Trade off “range” and “payload”
- (c) General Technology Note
- (d) General Software Note
- (e) Chemical Abstracts Service (CAS) Numbers

2. DEFINITIONS

- “Accuracy”
- “Basic scientific research”
- “Development”
- “In the public domain”
- “Microcircuit”
- “Microprogrammes”
- “Payload”
- Ballistic Missiles
- Space Launch Vehicles
- Sounding Rocket
- Cruise Missiles
- Other UAVs
- “Production”
- “Production equipment”
- “Production facilities”
- “Programmes”
- “Radiation hardened”
- “Range”
- “Software”
- “Technology”
- “Technical assistance”
- “Technical data”
- “Use”

3. TERMINOLOGY

- “Specially designed”
- “Designed or modified”
- “Usable in”, “usable for”, “usable as” or “capable of”
- “**Modified**”

CATEGORY I – ITEM 1

COMPLETE DELIVERY SYSTEMS

- 1.A.1. Complete rocket systems ($\geq 300\text{km}$ “range” & $\geq 500\text{kg}$ “payload”)
- 1.A.2. Complete unmanned aerial vehicle systems (UAVs) ($\geq 300\text{km}$ “range” & $\geq 500\text{kg}$ “payload”)
- 1.B.1. “Production facilities”
- 1.C. None
- 1.D.1. “Software”
- 1.D.2. “Software”
- 1.E.1. “Technology”

CATEGORY I – ITEM 2

COMPLETE SUBSYSTEMS USABLE FOR COMPLETE DELIVERY SYSTEMS

- 2.A.1. “Complete subsystems”
- 2.B.1. “Production facilities”
- 2.B.2. “Production equipment”
- 2.C. None
- 2.D.1. “Software”
- 2.D.2. “Software”
- 2.D.3. “Software”
- 2.D.4. “Software”
- 2.D.5. “Software”
- 2.D.6. “Software”
- 2.E.1. “Technology”

S/2014/253

CATEGORY II – ITEM 3

PROPULSION COMPONENTS AND EQUIPMENT

- 3.A.1. Turbojet and turbofan engines
- 3.A.2. Ramjet/scramjet/pulse jet/combined cycle engines
- 3.A.3. Rocket motor cases, “insulation” components and nozzles
- 3.A.4. Staging mechanisms, separation mechanisms and interstages
- 3.A.5. Liquid and slurry propellant (including oxidisers) control systems
- 3.A.6. Hybrid rocket motors
- 3.A.7. Radial ball bearings
- 3.A.8. Liquid propellant tanks
- 3.A.9. Turboprop engine systems
- 3.B.1. “Production facilities”
- 3.B.2. “Production equipment”
- 3.B.3. Flow-forming machines
- 3.C.1. “Interior lining” usable for rocket motor cases
- 3.C.2. “Insulation” material in bulk form usable for rocket motor cases
- 3.D.1. “Software”
- 3.D.2. “Software”
- 3.D.3. “Software”
- 3.E.1. “Technology”

CATEGORY II – ITEM 4

PROPELLANTS, CHEMICALS AND PROPELLANT PRODUCTION

- 4.A. None
- 4.B.1. “Production equipment”
- 4.B.2. “Production equipment”
- 4.B.3.a. Batch mixers
 - b. Continuous mixers
 - c. Fluid energy mills
 - d. Metal powder “production equipment”
- 4.C.1. Composite and composite modified double base propellants
- 4.C.2. Fuel substances
 - a. Hydrazine
 - b. Hydrazine derivatives
 - c. Spherical aluminium powder
 - d. Zirconium, beryllium, magnesium and alloys
 - e. Boron and boron alloys
 - f. High energy density materials

- 4.C.3. Perchlorates, chlorates or chromates
- 4.C.4.a. Oxidiser substances – liquid propellant rocket engines
 - b. Oxidiser substances – solid propellant rocket motors
- 4.C.5. Polymeric substances
- 4.C.6. Other propellant additives and agents
 - a. Bonding agents
 - b. Curing reaction catalysts
 - c. Burning rate modifiers
 - d. Esters and plasticisers
 - e. Stabilisers
- 4.D.1. “Software”
- 4.E.1. “**Technology**”

CATEGORY II – ITEM 5

(Reserved For Future Use)

CATEGORY II – ITEM 6

PRODUCTION OF STRUCTURAL COMPOSITES, PYROLYTIC DEPOSITION AND DENSIFICATION, AND STRUCTURAL MATERIALS

- 6.A.1. Composite structures, laminates and manufactures thereof
- 6.A.2. Resaturated pyrolised materials
- 6.B.1.a. Filament winding machines or fibre placement machines
 - b. Tape-laying machines
 - c. Multi-directional, multi-dimensional weaving machines or interlacing machines
 - d. Equipment designed or modified for the production of fibrous or filamentary materials
 - e. Equipment designed or modified for special fibre surface treatment
- 6.B.2. Nozzles
- 6.B.3. Isostatic presses
- 6.B.4. Chemical vapour deposition furnaces
- 6.B.5. Equipment and controls for the densification and pyrolysis process
- 6.C.1. Resin impregnated fibre prepregs and metal coated fibre preforms
- 6.C.2. Resaturated pyrolised materials
- 6.C.3. Fine grain graphites

- 6.C.4. Pyrolytic or fibrous reinforced graphites
- 6.C.5. Ceramic composite materials for missile radomes
- 6.C.6. Silicon-carbide materials
- 6.C.7. Tungsten molybdenum and alloys
- 6.C.8. Maraging steel
- 6.C.9. Titanium-stabilized duplex stainless steel
- 6.D.1. "Software"
- 6.D.2. "Software"
- 6.E.1. "Technology"
- 6.E.2. "Technical data"
- 6.E.3. "Technology"

CATEGORY II – ITEM 7

(Reserved For Future Use)

CATEGORY II – ITEM 8

(Reserved For Future Use)

CATEGORY II – ITEM 9

INSTRUMENTATION, NAVIGATION AND DIRECTION FINDING

- 9.A.1. Integrated flight instrument systems
- 9.A.2. Gyro-astro compasses
- 9.A.3. Linear accelerometers
- 9.A.4. All types of gyros
- 9.A.5. Accelerometers or gyros
- 9.A.6. Inertial or other equipment
- 9.A.7. "Integrated navigation systems"
- 9.A.8. Three axis magnetic heading sensors
- 9.B.1. "Production equipment", and other test, calibration and alignment equipment
- 9.B.2.a. Balancing machines
- b. Indicator heads
- c. Motion simulators/rate tables
- d. Positioning tables
- e. Centrifuges
- 9.C. None
- 9.D.1. "Software"
- 9.D.2. Integration "Software"
- 9.D.3. Integration "Software"
- 9.D.4. Integration "Software"
- 9.E.1. "Technology"

CATEGORY II – ITEM 10

FLIGHT CONTROL

- 10.A.1. Hydraulic, mechanical, electro-optical or electromechanical flight control systems
- 10.A.2. Attitude control equipment
- 10.A.3. Flight control servo-valves
- 10.B.1. Test calibration and alignment equipment
- 10.C. None
- 10.D.1. "Software"
- 10.E.1. Design "technology" for integration of air vehicle fuselage, propulsion system and lifting control surfaces
- 10.E.2. Design "technology" for integration of the flight control, guidance, and propulsion data into a flight management system
- 10.E.3. "Technology"

CATEGORY II – ITEM 11

AVIONICS

- 11.A.1. Radar and laser radar systems including altimeters
- 11.A.2. Passive sensors
- 11.A.3. Receiving equipment GNSS e.g. GPS, GLONASS or Galileo
- 11.A.4. Electronic assemblies and components
- 11.A.5. Umbilical and interstage electrical connectors
- 11.B. None
- 11.C. None
- 11.D.1. "Software"
- 11.D.2. "Software"
- 11.E.1. Design "technology"
- 11.E.2. "Technology"

CATEGORY II – ITEM 12

LAUNCH SUPPORT

- 12.A.1. Apparatus and devices
- 12.A.2. Vehicles
- 12.A.3. Gravity meters (gravimeters), gravity gradiometers
- 12.A.4. Telemetry and telecontrol equipment, including ground equipment
- 12.A.5. Precision tracking systems
 - a. Tracking Systems
 - b. Range instrumentation radars

S/2014/253

- 12.A.6. Thermal Batteries
- 12.B. None
- 12.C. None
- 12.D.1. "Software"
- 12.D.2. "Software"
- 12.D.3. "Software"
- 12.E.1. "Technology"

CATEGORY II – ITEM 13

COMPUTERS

- 13.A.1. Analogue or digital computers or digital differential analysers
- 13.B. None
- 13.C. None
- 13.D. None
- 13.E.1. "Technology"

CATEGORY II – ITEM 14

ANALOGUE TO DIGITAL CONVERTERS

- 14.A.1. Analogue-to-digital converters
- 14.B. None
- 14.C. None
- 14.D. None
- 14.E.1. "Technology"

CATEGORY II – ITEM 15

TEST FACILITIES AND EQUIPMENT

- 15.A. None
- 15.B.1. Vibration test equipment
 - a. Vibration test systems
 - b. Digital controllers
 - c. Vibration thrusters (shaker units)
 - d. Test piece support structures and electronic units
- 15.B.2. Wind-tunnels
- 15.B.3. Test benches/stands
- 15.B.4. Environmental chambers
- 15.B.5. Accelerators
- 15.C. None
- 15.D.1. "Software"
- 15.E.1. "Technology"

CATEGORY II – ITEM 16

MODELLING-SIMULATION AND DESIGN INTEGRATION

- 16.A.1. Hybrid (combined analogue/digital) computers
- 16.B. None
- 16.C. None
- 16.D.1. "Software"
- 16.E.1. "Technology"

CATEGORY II – ITEM 17

STEALTH

- 17.A.1. Devices for reduced observables
- 17.B.1. Systems specially designed for radar cross section measurement
- 17.C.1. Materials for reduced observables
- 17.D.1. "Software"
- 17.E.1. "Technology"

CATEGORY II – ITEM 18

NUCLEAR EFFECTS PROTECTION

- 18.A.1. "Radiation Hardened" "microcircuits"
- 18.A.2. "Detectors"
- 18.A.3. Radomes
- 18.B. None
- 18.C. None
- 18.D. None
- 18.E.1. "Technology"

CATEGORY II – ITEM 19

OTHER COMPLETE DELIVERY SYSTEMS

- 19.A.1. Complete rocket systems (≥ 300 km range)
- 19.A.2. Complete UAV systems (≥ 300 km range)
- 19.A.3. Complete UAV systems
- 19.B.1. "Production facilities"
- 19.C. None
- 19.D.1. "Software"
- 19.E.1. "Technology"

CATEGORY II – ITEM 20

OTHER COMPLETE SUBSYSTEMS

- 20.A.1.a. Individual rocket stages
 - b. Solid propellant rocket motors, hybrid rocket motors or liquid propellant rocket engines
- 20.B.1. “Production facilities”
- 20.B.2. “Production equipment”
- 20.C. None
- 20.D.1 “Software”
- 20.D.2. “Software”
- 20.E.1. “Technology”

UNITS, CONSTANTS, ACRONYMS AND
ABBREVIATIONS USED IN THIS ANNEX

TABLE OF CONVERSIONS

STATEMENT OF UNDERSTANDING

Introduction, definitions, terminology

1. INTRODUCTION

- (a) This Annex consists of two categories of items, which term includes equipment, materials, “software” or “technology”. Category I items, all of which are in Annex Items 1 and 2, are those items of greatest sensitivity. If a Category I item is included in a system, that system will also be considered as Category I, except when the incorporated item cannot be separated, removed or duplicated. Category II items are those items in the Annex not designated Category I.
- (b) In reviewing the proposed applications for transfers of complete rocket and unmanned aerial vehicle systems described in Items 1 and 19, and of equipment, materials, “software” or “technology” which is listed in the Technical Annex, for potential use in such systems, the Government will take account of the ability to trade off “range” and “payload”.

(c) **General Technology Note:**

The transfer of “technology” directly associated with any goods controlled in the Annex is controlled according to the provisions in each Item to the extent permitted by national legislation. The approval of any Annex item for export also authorizes the export to the same end-user of the minimum “technology” required for the installation, operation, maintenance, or repair of the item.

Note:

Controls do not apply to “technology” “in the public domain” or to “basic scientific research”.

(d) **General Software Note:**

The Annex does not control “software” which is either:

1. Generally available to the public by being:
 - a. Sold from stock at retail selling points without restriction, by means of:
 1. Over-the-counter transactions;
 2. Mail order transactions; or
 - 3. Electronic transactions; or**
 4. Telephone call transactions; and
 - b. Designed for installation by the user without further substantial support by the supplier; or
2. “In the public domain”.

Note:

The General Software Note only applies to general purpose, mass market “software”.

(e) Chemical Abstracts Service (CAS) Numbers:

In some instances chemicals are listed by name and CAS number. Chemicals of the same structural formula (including hydrates) are controlled regardless of name or CAS number. CAS numbers are shown to assist in identifying whether a particular chemical or mixture is controlled, irrespective of nomenclature. CAS numbers cannot be used as unique identifiers because some forms of the listed chemical have different CAS numbers, and mixtures containing a listed chemical may also have different CAS numbers.

S/2014/253

2. DEFINITIONS

For the purpose of this Annex, the following definitions apply:

“Accuracy”

Usually measured in terms of inaccuracy, means the maximum deviation, positive or negative, of an indicated value from an accepted standard or true value.

“Basic scientific research”

Experimental or theoretical work undertaken principally to acquire new knowledge of the fundamental principles of phenomena or observable facts, not primarily directed towards a specific practical aim or objective.

“Development”

Is related to all phases prior to “production” such as:

- design
- design research
- design analysis
- design concepts
- assembly and testing of prototypes
- pilot production schemes
- design data
- process of transforming design data into a product
- configuration design
- integration design
- layouts

“In the public domain”

This means “software” or “technology” which has been made available without restrictions upon its further dissemination. (Copyright restrictions do not remove “software” or “technology” from being “in the public domain”.)

“Microcircuit”

A device in which a number of passive and/or active elements are considered as indivisibly associated on or within a continuous structure to perform the function of a circuit.

“Microprogrammes”

A sequence of elementary instructions maintained in a special storage, the execution of which is initiated by the introduction of its reference instruction register.

“Payload”

The total mass that can be carried or delivered by the specified rocket system or unmanned aerial vehicle (UAV) system that is not used to maintain flight.

Note:

The particular equipment, subsystems, or components to be included in the “payload” depends on the type and configuration of the vehicle under consideration.

Technical Notes:

1. *Ballistic Missiles*

a. *“Payload” for systems with separating re-entry vehicles (RVs) includes:*

1. *The RVs, including:*
 - a. *Dedicated guidance, navigation, and control equipment;*
 - b. *Dedicated countermeasures equipment;*
2. *Munitions of any type (e.g. explosive or non-explosive);*
3. *Supporting structures and deployment mechanisms for the munitions (e.g. hardware used to attach to, or separate the RV from, the bus/post-boost vehicle) that can be removed without violating the structural integrity of the vehicle;*
4. *Mechanisms and devices for safing, arming, fuzing or firing;*
5. *Any other countermeasures equipment (e.g. decoys, jammers or chaff dispensers) that separate from the RV bus/post-boost vehicle;*
6. *The bus/post-boost vehicle or attitude control/velocity trim module not including systems/subsystems essential to the operation of the other stages.*

b. *“Payload” for systems with non-separating re-entry vehicles includes:*

1. *Munitions of any type (e.g. explosive or non-explosive);*
2. *Supporting structures and deployment mechanisms for the munitions that can be removed without violating the structural integrity of the vehicle;*
3. *Mechanisms and devices for safing, arming, fuzing or firing;*
4. *Any countermeasures equipment (e.g. decoys, jammers or chaff dispensers) that can be removed without violating the structural integrity of the vehicle.*

2. *Space Launch Vehicles*

“Payload” includes:

- a. *Spacecraft (single or multiple), including satellites;*
- b. *Spacecraft-to-launch vehicle adapters including, if applicable, apogee/perigee kick motors or similar manoeuvring systems **and separation systems.***

3. *Sounding Rockets*

“Payload” includes:

- a. *Equipment required for a mission, such as data gathering, recording or transmitting devices for mission-specific data;*

S/2014/253

- b. Recovery equipment (e.g. parachutes) that can be removed without violating the structural integrity of the vehicle.*

4. Cruise Missiles

“Payload” includes:

- a. Munitions of any type (e.g. explosive or non-explosive);*
- b. Supporting structures and deployment mechanisms for the munitions that can be removed without violating the structural integrity of the vehicle;*
- c. Mechanisms and devices for safing, arming, fuzing or firing;*
- d. Countermeasures equipment (e.g. decoys, jammers or chaff dispensers) that can be removed without violating the structural integrity of the vehicle;*
- e. Signature alteration equipment that can be removed without violating the structural integrity of the vehicle.*

5. Other UAVs

“Payload” includes:

- a. Munitions of any type (e.g. explosive or non-explosive);*
- b. Mechanisms and devices for safing, arming, fuzing or firing;*
- c. Countermeasures equipment (e.g. decoys, jammers or chaff dispensers) that can be removed without violating the structural integrity of the vehicle;*
- d. Signature alteration equipment that can be removed without violating the structural integrity of the vehicle;*
- e. Equipment required for a mission such as data gathering, recording or transmitting devices for mission-specific data and supporting structures that can be removed without violating the structural integrity of the vehicle;*
- f. Recovery equipment (e.g. parachutes) that can be removed without violating the structural integrity of the vehicle.*
- g. Munitions supporting structures and deployment mechanisms that can be removed without violating the structural integrity of the vehicle.*

“Production”

Means all production phases such as:

- production engineering
- manufacture
- integration
- assembly (mounting)
- inspection
- testing
- quality assurance

“Production equipment”

Means tooling, templates, jigs, mandrels, moulds, dies, fixtures, alignment mechanisms, test equipment, other machinery and components therefor, limited to those specially designed or modified for “development” or for one or more phases of “production”.

“Production facilities”

Means “production equipment” and specially designed “software” therefor integrated into installations for “development” or for one or more phases of “production”.

“Programmes”

A sequence of instructions to carry out a process in, or convertible into, a form executable by an electronic computer.

“Radiation hardened”

Means that the component or equipment is designed or rated to withstand radiation levels which meet or exceed a total irradiation dose of 5×10^5 rads (Si).

“Range”

The maximum distance that the specified rocket system or unmanned aerial vehicle (UAV) system is capable of travelling in the mode of stable flight as measured by the projection of its trajectory over the surface of the Earth.

Technical Notes:

- 1. The maximum capability based on the design characteristics of the system, when fully loaded with fuel or propellant, will be taken into consideration in determining “range”.*
- 2. The “range” for both rocket systems and UAV systems will be determined independently of any external factors such as operational restrictions, limitations imposed by telemetry, data links or other external constraints.*
- 3. For rocket systems, the “range” will be determined using the trajectory that maximises “range”, assuming ICAO standard atmosphere with zero wind.*
- 4. For UAV systems, the “range” will be determined for a one-way distance using the most fuel-efficient flight profile (e.g. cruise speed and altitude), assuming ICAO standard atmosphere with zero wind.*

“Software”

A collection of one or more “programmes”, or “micro-programmes”, fixed in any tangible medium of expression.

S/2014/253

“Technology”

Means specific information which is required for the “development”, “production” or “use” of a product. The information may take the form of “technical data” or “technical assistance”.

“Technical assistance”

May take forms such as:

- instruction
- skills
- training
- working knowledge
- consulting services

“Technical data”

May take forms such as:

- blueprints
- plans
- diagrams
- models
- formulae
- engineering designs and specifications
- manuals and instructions written or recorded on other media or devices such as:
 - disk
 - tape
 - read-only memories

“Use”

Means:

- operation
- installation (including on-site installation)
- maintenance
- repair
- overhaul
- refurbishing

3. TERMINOLOGY

Where the following terms appear in the text, they are to be understood according to the explanations below:

- (a) “Specially designed” describes equipment, parts, components, materials or “software” which, as a result of “development”, have unique properties that distinguish them for certain predetermined purposes. For example, a piece of equipment that is “specially designed” for use in a missile will only be considered so if it has no other function or use. Similarly, a piece of manufacturing equipment that is “specially designed” to produce a

certain type of component will only be considered such if it is not capable of producing other types of components.

- (b) “Designed or modified” describes equipment, parts or components which, as a result of “development,” or modification, have specified properties that make them fit for a particular application. “Designed or modified” equipment, parts, components or “software” can be used for other applications. For example, a titanium coated pump designed for a missile may be used with corrosive fluids other than propellants.
- (c) “Usable in”, “usable for”, “usable as” or “capable of” describes equipment, parts, components, materials or “software” which are suitable for a particular purpose. There is no need for the equipment, parts, components or “software” to have been configured, modified or specified for the particular purpose. For example, any military specification memory circuit would be “capable of” operation in a guidance system.
- (d) “Modified” in the context of “software” describes “software” which has been intentionally changed such that it has properties that make it fit for specified purposes or applications. Its properties may also make it suitable for purposes or applications other than those for which it was “modified”.

S/2014/253

CATEGORY I; ITEM 1**CATEGORY I****ITEM 1 COMPLETE DELIVERY SYSTEMS****1.A. EQUIPMENT, ASSEMBLIES AND COMPONENTS**

1.A.1. Complete rocket systems (including ballistic missile systems, space launch vehicles, and sounding rockets) capable of delivering at least a 500 kg “payload” to a “range” of at least 300 km.

1.A.2. Complete unmanned aerial vehicle systems (including cruise missile systems, target drones and reconnaissance drones) capable of delivering at least a 500 kg “payload” to a “range” of at least 300 km.

1.B. TEST AND PRODUCTION EQUIPMENT

1.B.1. “Production facilities” specially designed for the systems specified in 1.A.

1.C. MATERIALS

None.

1.D. SOFTWARE

1.D.1. “Software” specially designed or modified for the “use” of “production facilities” specified in 1.B.

1.D.2. “Software” which coordinates the function of more than one subsystem, specially designed or modified for “use” in systems specified in 1.A.

1.E. TECHNOLOGY

1.E.1. “Technology”, in accordance with the General Technology Note, for the “development”, “production” or “use” of equipment or “software” specified in 1.A., 1.B., or 1.D.

CATEGORY I; ITEM 2**ITEM 2 COMPLETE SUBSYSTEMS USABLE FOR COMPLETE DELIVERY SYSTEMS****2.A. EQUIPMENT, ASSEMBLIES AND COMPONENTS****2.A.1. Complete subsystems usable in the systems specified in 1.A., as follows:**

- a. Individual rocket stages usable in the systems specified in 1.A.;
- b. Re-entry vehicles, and equipment designed or modified therefor, usable in the systems specified in 1.A., as follows, except as provided in the Note below 2.A.1. for those designed for non-weapon payloads:
 1. Heat shields, and components therefor, fabricated of ceramic or ablative materials;
 2. Heat sinks and components therefor, fabricated of light-weight, high heat capacity materials;
 3. Electronic equipment specially designed for re-entry vehicles;
- c. **Rocket propulsion subsystems, usable in the systems specified in 1.A., as follows:**
 1. **Solid propellant rocket motors or hybrid rocket motors having a total impulse capacity equal to or greater than 1.1×10^6 Ns;**
 2. **Liquid propellant rocket engines integrated, or designed or modified to be integrated, into a liquid propellant propulsion system which has a total impulse capacity equal to or greater than 1.1×10^6 Ns;**

Note:

Liquid propellant apogee engines or station-keeping engines specified in 2.A.1.c.2., designed or modified for use on satellites, may be treated as Category II, if the subsystem is exported subject to end-use statements and quantity limits appropriate for the excepted end-use stated above, when having a vacuum thrust not greater than 1kN.

- d. "Guidance sets", usable in the systems specified in 1.A., capable of achieving system accuracy of 3.33% or less of the "range" (e.g. a "CEP" of 10 km or less at a "range" of 300 km), except as provided in the Note below 2.A.1. for those designed for missiles with a "range" under 300 km or manned aircraft;

Technical Notes:

1. A "guidance set" integrates the process of measuring and computing a vehicle's position and velocity (i.e. navigation) with that of computing and sending commands to the vehicle's flight control systems to correct the trajectory.

S/2014/253

2. “CEP” (circle of equal probability) is a measure of accuracy, defined as the radius of the circle centred at the target, at a specific range, in which 50% of the payloads impact.

- e. Thrust vector control sub-systems, usable in the systems specified in 1.A., except as provided in the Note below 2.A.1. for those designed for rocket systems that do not exceed the “range”/“payload” capability of systems specified in 1.A.;

Technical Note:

2.A.1.e. includes the following methods of achieving thrust vector control:

- a. Flexible nozzle;
- b. Fluid or secondary gas injection;
- c. Movable engine or nozzle;
- d. Deflection of exhaust gas stream (jet vanes or probes);
- e. Use of thrust tabs.

- f. Weapon or warhead safing, arming, fuzing, and firing mechanisms, usable in the systems specified in 1.A., except as provided in the Note below 2.A.1. for those designed for systems other than those specified in 1.A.

Note:

The exceptions in 2.A.1.b., 2.A.1.d., 2.A.1.e. and 2.A.1.f. above may be treated as Category II if the subsystem is exported subject to end-use statements and quantity limits appropriate for the excepted end-use stated above.

2.B. TEST AND PRODUCTION EQUIPMENT

2.B.1. “Production facilities” specially designed for the subsystems specified in 2.A.

2.B.2. “Production equipment” specially designed for the subsystems specified in 2.A.

2.C. MATERIALS

None.

2.D. SOFTWARE

2.D.1. “Software” specially designed or modified for the “use” of “production facilities” specified in 2.B.1.

- 2.D.2. “Software” specially designed or modified for the “use” of rocket motors or engines specified in 2.A.1.c.
- 2.D.3. “Software”, specially designed or modified for the “use” of “guidance sets” specified in 2.A.1.d.

Note:

2.D.3. includes “software”, specially designed or modified to enhance the performance of ‘guidance sets’ to achieve or exceed the accuracy specified in 2.A.1.d.

- 2.D.4. “Software” specially designed or modified for the “use” of subsystems or equipment specified in 2.A.1.b.3.
- 2.D.5. “Software” specially designed or modified for the “use” of systems in 2.A.1.e.
- 2.D.6. “Software” specially designed or modified for the “use” of systems in 2.A.1.f.

Note:

Subject to end-use statements appropriate for the excepted end-use, “software” controlled by 2.D.2.-2.D.6. may be treated as Category II as follows:

1. Under 2.D.2. if specially designed or modified for liquid propellant apogee engines **or station keeping engines**, designed or modified for satellite applications as specified in the Note to **2.A.1.c.2.**;
2. Under 2.D.3. if designed for missiles with a “range” of under 300 km or manned aircraft;
3. Under 2.D.4. if specially designed or modified for re-entry vehicles designed for non-weapon payloads;
4. Under 2.D.5. if designed for rocket systems that do not exceed the “range” “payload” capability of systems specified in 1.A.;
5. Under 2.D.6. if designed for systems other than those specified in 1.A.

2.E. TECHNOLOGY

- 2.E.1. “Technology”, in accordance with the General Technology Note, for the “development”, “production” or “use” of equipment or “software” specified in 2.A., 2.B. or 2.D.

S/2014/253

CATEGORY II; ITEM 3**CATEGORY II****ITEM 3 PROPULSION COMPONENTS AND EQUIPMENT****3.A. EQUIPMENT, ASSEMBLIES AND COMPONENTS****3.A.1. Turbojet and turbofan engines, as follows:**

- a. Engines having both of the following characteristics:
 1. "Maximum thrust value" greater than 400 N (achieved un-installed) excluding civil certified engines with a "maximum thrust value" greater than 8.89 kN (achieved un-installed); and
 2. Specific fuel consumption of $0.15 \text{ kg N}^{-1} \text{ h}^{-1}$ or less (at maximum continuous power at **sea level static conditions using the ICAO standard atmosphere**);

Technical Note:

In 3.A.1.a.1., "maximum thrust value" is the manufacturer's demonstrated maximum thrust for the engine type un-installed. The civil type certified thrust value will be equal to or less than the manufacturer's demonstrated maximum thrust for the engine type.

- b. Engines designed or modified for systems specified in 1.A. or 19.A.2., regardless of thrust or specific fuel consumption.

Note:

Engines specified in 3.A.1. may be exported as part of a manned aircraft or in quantities appropriate for replacement parts for a manned aircraft.

- 3.A.2. Ramjet/scramjet/pulse jet/ "combined cycle engines", including devices to regulate combustion, and specially designed components therefor, usable in the systems specified in 1.A. or 19.A.2.

Technical Note:

In Item 3.A.2., "combined cycle engines" are the engines that employ two or more cycles of the following types of engines: gas-turbine engine (turbojet, turboprop, turbofan and turboshaft), ramjet, scramjet, pulse jet, pulse detonation engine, rocket motor (liquid/solid-propellant and hybrid).

- 3.A.3. Rocket motor cases, "insulation" components and nozzles therefor, usable in the systems specified in 1.A. or 19.A.1.

Technical Note:

In 3.A.3. "insulation" intended to be applied to the components of a rocket motor, i.e. the case, nozzle inlets, case closures, includes cured or semi-cured compounded rubber components comprising sheet stock containing an insulating or refractory material. It may also be incorporated as stress relief boots or flaps.

Note:

Refer to 3.C.2. for 'insulation' material in bulk or sheet form.

- 3.A.4. Staging mechanisms, separation mechanisms, and interstages therefor, usable in the systems specified in 1.A.

Note:

See also Item 11.A.5.

- 3.A.5. Liquid, slurry **and gel** propellant (including oxidisers) control systems, and specially designed components therefor, usable in the systems specified in 1.A., designed or modified to operate in vibration environments greater than 10 g rms between 20 Hz and 2 kHz.

Notes:

1. *The only servo valves and pumps specified in 3.A.5. are the following:*
 - a. *Servo valves designed for flow rates equal to or greater than 24 litres per minute, at an absolute pressure equal to or greater than 7 MPa, that have an actuator response time of less than 100 ms.*
 - b. *Pumps, for liquid propellants, with shaft speeds equal to or greater than 8,000 rpm or with discharge pressures equal to or greater than 7 MPa.*
2. *Systems and components specified in 3.A.5. may be exported as part of a satellite.*

- 3.A.6. Specially designed components for hybrid rocket motors specified in 2.A.1.c. and 20.A.1.b.

- 3.A.7. Radial ball bearings having all tolerances specified in accordance with ISO 492 Tolerance Class 2 (or ANSI/ABMA Std 20 Tolerance Class ABEC-9 or other national equivalents), or better and having all the following characteristics:

- a. An inner ring bore diameter between 12 and 50 mm;
- b. An outer ring outside diameter between 25 and 100 mm; and
- c. A width between 10 and 20 mm.

S/2014/253

- 3.A.8. Liquid propellant tanks specially designed for the propellants controlled in Item 4.C. or other liquid propellants used in the systems specified in 1.A.1.
- 3.A.9. “Turboprop engine systems” specially designed for the systems in 1.A.2. or 19.A.2., and specially designed components therefor, having a maximum power greater than 10 kW (achieved uninstalled at **sea level static conditions using the ICAO standard atmosphere**), excluding civil certified engines.

Technical Note:

For the purposes of Item 3.A.9., a “turboprop engine system” incorporates all of the following:

- a. Turbohaft engine; and*
- b. Power transmission system to transfer the power to a propeller.*

3.B. TEST AND PRODUCTION EQUIPMENT

- 3.B.1. “Production facilities” specially designed for equipment or materials specified in 3.A.1., 3.A.2., 3.A.3., 3.A.4., 3.A.5., 3.A.6., 3.A.8., 3.A.9. or 3.C.
- 3.B.2. “Production equipment” specially designed for equipment or materials specified in 3.A.1., 3.A.2., 3.A.3., 3.A.4., 3.A.5., 3.A.6., 3.A.8., 3.A.9. or 3.C.
- 3.B.3. Flow-forming machines, and specially designed components therefor, which:
- a. According to the manufacturers technical specification can be equipped with numerical control units or a computer control, even when not equipped with such units at delivery; and
 - b. Have more than two axes which can be co-ordinated simultaneously for contouring control.

Note:

This item does not include machines that are not usable in the “production” of propulsion components and equipment (e.g. motor cases) for systems specified in 1.A.

Technical Note:

Machines combining the function of spin-forming and flow-forming are, for the purpose of this item, regarded as flow-forming machines.

3.C. MATERIALS

- 3.C.1. “Interior lining” usable for rocket motor cases in the systems specified in 1.A. or specially designed for systems specified in 19.A.1. or 19.A.2.

Technical Note:

In 3.C.1. “interior lining” suited for the bond interface between the solid propellant and the case or insulating liner is usually a liquid polymer based dispersion of refractory or insulating materials e.g. carbon filled HTPB or other polymer with added curing agents to be sprayed or screeded over a case interior.

- 3.C.2. “Insulation” material in bulk form usable for rocket motor cases in the systems specified in 1.A. or specially designed for systems specified in 19.A.1. or 19.A.2.

Technical Note:

In 3.C.2. “insulation” intended to be applied to the components of a rocket motor, i.e. the case, nozzle inlets, case closures, includes cured or semi-cured compounded rubber sheet stock containing an insulating or refractory material. It may also be incorporated as stress relief boots or flaps specified in 3.A.3.

3.D. SOFTWARE

- 3.D.1. “Software” specially designed or modified for the “use” of “production facilities” and flow forming machines specified in 3.B.1. or 3.B.3.

- 3.D.2. “Software” specially designed or modified for the “use” of equipment specified in 3.A.1., 3.A.2., 3.A.4., 3.A.5., 3.A.6. or 3.A.9.

Notes:

- 1. “Software” specially designed or modified for the “use” of engines specified in 3.A.1. may be exported as part of a manned aircraft or as replacement “software” therefor.*
- 2. “Software” specially designed or modified for the “use” of propellant control systems specified in 3.A.5. may be exported as part of a satellite or as replacement “software” therefor.*

- 3.D.3. “Software” specially designed or modified for the “development” of equipment specified in 3.A.2., 3.A.3. or 3.A.4.**

S/2014/253

3.E. TECHNOLOGY

- 3.E.1. “Technology”, in accordance with the General Technology Note, for the “development”, “production” or “use” of equipment, materials or “software” specified in 3.A.1., 3.A.2., 3.A.3., 3.A.4., 3.A.5., 3.A.6., 3.A.8.,3.A.9., 3.B., 3.C. or 3.D.

CATEGORY II; ITEM 4**ITEM 4 PROPELLANTS, CHEMICALS AND PROPELLANT PRODUCTION**

4.A. EQUIPMENT, ASSEMBLIES AND COMPONENTS

None.

4.B. TEST AND PRODUCTION EQUIPMENT

4.B.1. "Production equipment", and specially designed components therefor, for the "production", handling or acceptance testing of liquid propellants or propellant constituents specified in 4.C.

4.B.2. "Production equipment", other than that described in 4.B.3., and specially designed components therefor, for the production, handling, mixing, curing, casting, pressing, machining, extruding or acceptance testing of solid propellants or propellant constituents specified in 4.C.

4.B.3. Equipment as follows, and specially designed components therefor:

a. Batch mixers with provision for mixing under vacuum in the range of zero to 13.326 kPa and with temperature control capability of the mixing chamber and having all of the following:

1. A total volumetric capacity of 110 litres or more; and
2. *At least one "mixing/kneading shaft" mounted off centre;*

Note:

In Item 4.B.3.a.2. the term "mixing/kneading shaft" does not refer to deagglomerators or knife-spindles.

b. Continuous mixers with provision for mixing under vacuum in the range of zero to 13.326 kPa and with a temperature control capability of the mixing chamber having any of the following:

1. Two or more mixing/kneading shafts; or
2. A single rotating shaft which oscillates and having kneading teeth/pins on the shaft as well as inside the casing of the mixing chamber;

c. Fluid energy mills usable for grinding or milling substances specified in 4.C.;

S/2014/253

d. Metal powder “production equipment” usable for the “production”, in a controlled environment, of spherical, spheroidal or atomised materials specified in 4.C.2.c., 4.C.2.d. or 4.C.2.e.

Note:

4.B.3.d. includes:

- a. Plasma generators (high frequency arc-jet) usable for obtaining sputtered or spherical metallic powders with organization of the process in an argon-water environment;
- b. Electrobust equipment usable for obtaining sputtered or spherical metallic powders with organization of the process in an argon-water environment;
- c. Equipment usable for the “production” of spherical aluminium powders by powdering a melt in an inert medium (e.g. nitrogen).

Notes:

1. The only batch mixers, continuous mixers, usable for solid propellants or propellants constituents specified in 4.C., and fluid energy mills specified in 4.B., are those specified in 4.B.3.
2. Forms of metal powder “production equipment” not specified in 4.B.3.d. are to be evaluated in accordance with 4.B.2.

4.C. MATERIALS

4.C.1. Composite and composite modified double base propellants.

4.C.2. Fuel substances as follows:

- a. Hydrazine (CAS 302-01-2) with a concentration of more than 70%;
- b. Hydrazine derivatives as follows:
 1. Monomethylhydrazine (MMH) (CAS 60-34-4);
 2. Unsymmetricaldimethylhydrazine (UDMH) (CAS 57-14-7);
 3. Hydrazine mononitrate;
 4. Trimethylhydrazine(CAS 1741-01-1);
 5. Tetramethylhydrazine(CAS 6415-12-9);
 6. N,N diallylhydrazine;
 7. Allylhydrazine(CAS 7422-78-8);
 8. Ethylenedihydrazine;
 9. Monomethylhydrazinedinitrate;
 10. Unsymmetricaldimethylhydrazine nitrate;
 11. Hydraziniumazide (CAS 14546-44-2);
 12. Dimethylhydraziniumazide;

13. Hydraziniumdinitrate;
14. Diimido oxalic acid dihydrazine (CAS 3457-37-2);
15. 2-hydroxyethylhydrazine nitrate (HEHN);
16. Hydrazinium perchlorate (CAS 27978-54-7);
17. Hydrazinium diperchlorate (CAS 13812-39-0);
18. Methylhydrazine nitrate (MHN);
19. Diethylhydrazine nitrate (DEHN);
20. 3,6-dihydrazino tetrazine nitrate (DHTN);

Technical note:

*3,6-dihydrazino tetrazine nitrate is also referred to as
1,4-dihydrazine nitrate*

- c. Spherical or spheroidal aluminium powder (CAS 7429-90-5) in particle size of less than 200×10^{-6} m (200 μ m) and an aluminium content of 97% by weight or more, if at least 10% of the total weight is made up of particles of less than 63 μ m, according to ISO 2591:1988 or national equivalents;

Technical Note:

A particle size of 63 μ m (ISO R-565) corresponds to 250 mesh (Tyler) or 230 mesh (ASTM standard E-11).

- d. Metal powders of any of the following: zirconium (CAS 7440-67-7), beryllium (CAS 7440-41-7), magnesium (CAS 7439-95-4) or alloys of these, if at least 90% of the total particles by particle volume or weight are made up of particles of less than 60 μ m (determined by measurement techniques such as using a sieve, laser diffraction or optical scanning), whether spherical, atomised, spheroidal, flaked or ground, consisting of 97% by weight or more of any of the above mentioned metals;

Note:

In a multimodal particle distribution (e.g. mixtures of different grain sizes) in which one or more modes are controlled, the entire powder mixture is controlled.

Technical Note:

The natural content of hafnium (CAS 7440-58-6) in the zirconium (typically 2% to 7%) is counted with the zirconium.

- e. Metal powders of either boron (CAS 7440-42-8) or boron alloys with a boron content of 85% or more by weight, if at least 90% of the total particles by particle volume or weight are made up of particles of less than 60 μ m (determined by measurement techniques such

S/2014/253

as using a sieve, laser diffraction or optical scanning), whether spherical, atomised, spheroidal, flaked or ground;

Note:

In a multimodal particle distribution (e.g. mixtures of different grain sizes) in which one or more modes are controlled, the entire powder mixture is controlled.

f. High energy density materials, usable in the systems specified in 1.A. or 19.A., as follows:

1. Mixed fuels that incorporate both solid and liquid fuels, such as boron slurry, having a mass-based energy density of 40×10^6 J/kg or greater;
2. Other high energy density fuels and fuel additives (e.g., cubane, ionic solutions, JP-10) having a volume-based energy density of 37.5×10^9 J/m³ or greater, measured at 20°C and one atmosphere (101.325 kPa) pressure.

Note:

Item 4.C.2.f.2. does not control fossil refined fuels and biofuels produced from vegetables, including fuels for engines certified for use in civil aviation, unless specifically formulated for systems specified in 1.A. or 19.A.

4.C.3. Oxidisers/Fuels as follows:

Perchlorates, chlorates or chromates mixed with powdered metals or other high energy fuel components.

4.C.4. Oxidiser substances as follows:

a. Oxidiser substances usable in liquid propellant rocket engines as follows:

1. Dinitrogen trioxide (CAS 10544-73-7);
2. Nitrogen dioxide (CAS 10102-44-0) / dinitrogen tetroxide (CAS 10544-72-6);
3. Dinitrogenpentoxide (CAS 10102-03-1);
4. Mixed Oxides of Nitrogen (MON);
5. Inhibited Red Fuming Nitric Acid (IRFNA) (CAS 8007-58-7);
6. Compounds composed of fluorine and one or more of other halogens, oxygen or nitrogen;

Note:

Item 4.C.4.a.6. does not control Nitrogen Trifluoride (NF₃) (CAS 7783-54-2) in a gaseous state as it is not usable for missile applications.

Technical Note:

*Mixed Oxides of Nitrogen (MON) are solutions of Nitric Oxide (NO) in Dinitrogen Tetroxide/Nitrogen Dioxide (N₂O₄/NO₂) that can be used in missile systems. There are a range of compositions that can be denoted as MON_i or MON_{ij} where *i* and *j* are integers representing the percentage of Nitric Oxide in the mixture (e.g. MON₃ contains 3% Nitric Oxide, MON₂₅ 25% Nitric Oxide. An upper limit is MON₄₀, 40% by weight).*

- b. Oxidiser substances usable in solid propellant rocket motors as follows:
1. Ammonium perchlorate (AP) (CAS 7790-98-9);
 2. Ammonium dinitramide (ADN) (CAS 140456-78-6);
 3. Nitro-amines (cyclotetramethylene - tetranitramine (HMX) (CAS 2691-41-0);
cyclotrimethylene - trinitramine (RDX) (CAS 121-82-4);
 4. Hydraziniumnitroformate (HNF) (CAS 20773-28-8);
 5. 2,4,6,8,10,12-Hexanitrohexaazaisowurtzitane (CL-20)
(CAS 135285-90-4).

4.C.5. Polymeric substances, as follows:

- a. Carboxy - terminated polybutadiene(including carboxyl - terminated polybutadiene) (CTPB);
- b. Hydroxy - terminated polybutadiene(including hydroxyl - terminated polybutadiene) (HTPB);
- c. Glycidylazide polymer (GAP);
- d. Polybutadiene - Acrylic Acid (PBAA);
- e. Polybutadiene - Acrylic Acid - Acrylonitrile (PBAN);
- f. Polytetrahydrofuran polyethylene glycol (TPEG).

Technical Note:

Polytetrahydrofuran polyethylene glycol (TPEG) is a block co-polymer of poly 1,4-Butanediol and polyethylene glycol (PEG).

4.C.6. Other propellant additives and agents as follows:

- a. Bonding agents as follows:
1. Tris (1-(2-methyl)aziridiny) phosphine oxide (MAPO) (CAS 57-39-6);
 2. 1,1',1''-trimesoyl-tris(2-ethylaziridine) (HX-868, BITA) (CAS 7722-73-8);

S/2014/253

3. Tepanol (HX-878), reaction product of tetraethylenepentamine, acrylonitrile and glycidol(CAS 68412-46-4);
4. Tepan (HX-879), reaction product of tetraethylenepentamine and acrylonitrile (CAS 68412-45-3);
5. **Polyfunctionalaziridine amides with isophthalic, trimesic, isocyanuric, or trimethyladipic backbone also having a 2-methyl or 2-ethyl aziridine group;**

Note:

Item 4.C.6.a.5. includes:

1. *1,1'-Isophthaloyl-bis(2-methylaziridine) (HX-752) (CAS 7652-64-4);*
 2. *2,4,6-tris(2-ethyl-1-aziridinyl)-1,3,5-triazine (HX-874) (CAS 18924-91-9);*
 3. *1,1'-trimethyladipoylbis(2-ethylaziridine) (HX-877) (CAS 71463-62-2).*
- b. Curing reaction catalysts as follows:
Triphenyl bismuth (TPB) (CAS 603-33-8);
- c. Burning rate modifiers, as follows:
1. Carboranes, decaboranes, pentaboranes and derivatives thereof;
 2. Ferrocene derivatives, as follows:
 - a. Catocene(CAS 37206-42-1);
 - b. Ethyl ferrocene (CAS 1273-89-8);
 - c. Propyl ferrocene;
 - d. n-Butyl ferrocene(CAS 31904-29-7);
 - e. Pentylferrocene(CAS 1274-00-6);
 - f. Dicyclopentylferrocene;
 - g. Dicyclohexylferrocene;
 - h. Diethyl ferrocene (CAS 1273-97-8);
 - i. Dipropylferrocene;
 - j. Dibutylferrocene(CAS 1274-08-4);
 - k. Dihexylferrocene(CAS 93894-59-8);
 - l. Acetyl ferrocene (CAS 1271-55-2) / 1,1'-diacetyl ferrocene (CAS 1273-94-5);
 - m. Ferrocene carboxylic acid (CAS 1271-42-7) / 1,1'-Ferrocenedicarboxylic acid (CAS 1293-87-4);
 - n. Butacene(CAS 125856-62-4);
 - o. Other ferrocene derivatives usable as rocket propellant burning rate modifiers;

Note:

Item 4.C.6.c.2.o does not control ferrocene derivatives that contain a six carbon aromatic functional group attached to the ferrocene molecule.

- d. Esters and plasticisers as follows:
1. Triethylene glycol dinitrate (TEGDN) (CAS 111-22-8);
 2. Trimethylolethane trinitrate (TMETN) (CAS 3032-55-1);
 3. 1,2,4-butanetriol trinitrate (BTTN) (CAS 6659-60-5);
 4. Diethylene glycol dinitrate (DEGDN) (CAS 693-21-0);
 5. 4,5 diazidomethyl-2-methyl-1,2,3-triazole (iso- DAMTR);
 6. Nitrateoethylnitramine (NENA) based plasticisers, as follows:
 - a. Methyl-NENA (CAS 17096-47-8);
 - b. Ethyl-NENA (CAS 85068-73-1);
 - c. Butyl-NENA (CAS 82486-82-6);
 7. Dinitropropyl based plasticisers, as follows:
 - a. Bis (2,2-dinitropropyl) acetal (BDNPA) (CAS 5108-69-0);
 - b. Bis (2,2-dinitropropyl) formal (BDNPF) (CAS 5917-61-3);
- e. Stabilisers as follows:
1. 2-Nitrodiphenylamine (CAS 119-75-5);
 2. N-methyl-p-nitroaniline(CAS 100-15-2).

4.D. SOFTWARE

- 4.D.1. "Software" specially designed or modified for the **operation or maintenance** of equipment specified in 4.B. for the "production" and handling of materials specified in 4.C.

4.E. TECHNOLOGY

- 4.E.1 "Technology", in accordance with the General Technology Note, for the "development", "production" or "use" of equipment or materials specified in 4.B. and 4.C.

S/2014/253

CATEGORY II; ITEM 5RESERVED FOR FUTURE USE

ITEM 6 PRODUCTION OF STRUCTURAL COMPOSITES, PYROLYTIC DEPOSITION AND DENSIFICATION, AND STRUCTURAL MATERIALS

- 6.A. EQUIPMENT, ASSEMBLIES AND COMPONENTS
- 6.A.1. Composite structures, laminates, and manufactures thereof, specially designed for use in the systems specified in 1.A., 19.A.1. or 19.A.2. and the subsystems specified in 2.A. or 20.A.
- 6.A.2. Resaturated pyrolised (i.e. carbon-carbon) components having all of the following:
- a. Designed for rocket systems; and
 - b. Usable in the systems specified in 1.A. or 19.A.1.
- 6.B. TEST AND PRODUCTION EQUIPMENT
- 6.B.1. Equipment for the “production” of structural composites, fibres, prepregs or preforms, usable in the systems specified in 1.A., 19.A.1. or 19.A.2., as follows, and specially designed components, and accessories therefor:
- a. Filament winding machines or fibre placement machines, of which the motions for positioning, wrapping and winding fibres can be co-ordinated and programmed in three or more axes, designed to fabricate composite structures or laminates from fibrous or filamentary materials, and co-ordinating and programming controls;
 - b. Tape-laying machines of which the motions for positioning and laying tape and sheets can be co-ordinated and programmed in two or more axes, designed for the manufacture of composite airframes and missile structures;
 - c. Multi-directional, multi-dimensional weaving machines or interlacing machines, including adapters and modification kits for weaving, interlacing or braiding fibres to manufacture composite structures;

S/2014/253

Note:

6.B.1.c. does not control textile machinery not modified for the end-uses stated.

- d. Equipment designed or modified for the production of fibrous or filamentary materials as follows:
1. Equipment for converting polymeric fibres (such as polyacrylonitrile, rayon, or polycarbosilane) including special provision to strain the fibre during heating;
 2. Equipment for the vapour deposition of elements or compounds on heated filament substrates;
 3. Equipment for the wet-spinning of refractory ceramics (such as aluminium oxide);
- e. Equipment designed or modified for special fibre surface treatment or for producing prepregs and preforms, including rollers, tension stretchers, coating equipment, cutting equipment and clicker dies.

Note:

Examples of components and accessories for the machines specified in 6.B.1. are moulds, mandrels, dies, fixtures and tooling for the preform pressing, curing, casting, sintering or bonding of composite structures, laminates and manufactures thereof.

- 6.B.2. Nozzles specially designed for the processes referred to in 6.E.3.
- 6.B.3. Isostatic presses having all of the following characteristics:
- a. Maximum working pressure equal to or greater than 69 MPa;**
 - b. Designed to achieve and maintain a controlled thermal environment of 600° C or greater;
and
 - c. Possessing a chamber cavity with an inside diameter of 254 mm or greater.
- 6.B.4. Chemical vapour deposition furnaces designed or modified for the densification of carbon-carbon composites.
- 6.B.5. Equipment and process controls, other than those specified in 6.B.3. or 6.B.4., designed or modified for densification and pyrolysis of structural composite rocket nozzles and re-entry vehicle nose tips.

6.C. MATERIALS

- 6.C.1. Resin impregnated fibreprepregs and metal coated fibre preforms, for the goods specified in 6.A.1., made either with organic matrix or metal matrix utilising fibrous or filamentary reinforcements having a specific tensile strength greater than 7.62×10^4 m and a specific modulus greater than 3.18×10^6 m.

Note:

The only resin impregnated fibreprepregs specified in 6.C.1. are those using resins with a glass transition temperature (Tg), after cure, exceeding 145°C as determined by ASTM D4065 or national equivalents.

Technical Notes:

1. In Item 6.C.1. "specific tensile strength" is the ultimate tensile strength in N/m^2 divided by the specific weight in N/m^3 , measured at a temperature of $(296 \pm 2)K$ ($(23 \pm 2)^\circ C$) and a relative humidity of $(50 \pm 5)\%$.
 2. In Item 6.C.1. "specific modulus" is the Young's modulus in N/m^2 divided by the specific weight in N/m^3 , measured at a temperature of $(296 \pm 2)K$ ($(23 \pm 2)^\circ C$) and a relative humidity of $(50 \pm 5)\%$.
- 6.C.2. Resaturated pyrolised (i.e. carbon-carbon) materials having all of the following:
- a. Designed for rocket systems; and
 - b. Usable in the systems specified in 1.A. or 19.A.1.
- 6.C.3. Fine grain graphites with a bulk density of at least 1.72 g/cc measured at 15°C and having a grain size of 100×10^{-6} m (100 μ m) or less, usable for rocket nozzles and re-entry vehicle nose tips, which can be machined to any of the following products:
- a. Cylinders having a diameter of 120 mm or greater and a length of 50 mm or greater;**
 - b. Tubes having an inner diameter of 65 mm or greater and a wall thickness of 25 mm or greater and a length of 50 mm or greater; or**
 - c. Blocks having a size of 120 mm x 120 mm x 50 mm or greater.**
- 6.C.4. Pyrolytic or fibrous reinforced graphites usable for rocket nozzles and re-entry vehicle nose tips usable in systems specified in 1.A. or 19.A.1.

S/2014/253

- 6.C.5. Ceramic composite materials (dielectric constant less than 6 at any frequency from 100 MHz to 100 GHz) for use in missile radomes usable in systems specified in 1.A. or 19.A.1.
- 6.C.6. Silicon-carbide materials as follows:
- a. **Bulk machinable silicon-carbide reinforced unfired ceramic usable for nose tips usable in systems specified in 1.A. or 19.A.1.;**
 - b. **Reinforced silicon-carbide ceramic composites usable for nose tips, re-entry vehicles, nozzle flaps, usable in systems specified in 1.A. or 19.A.1.**
- 6.C.7. Materials for the fabrication of missile components in the systems specified in 1.A., 19.A.1. or 19.A.2, as follows:
- a. **Tungsten and alloys in particulate form with a tungsten content of 97% by weight or more and a particle size of 50×10^{-6} m (50 μ m) or less;**
 - b. **Molybdenum and alloys in particulate form with a molybdenum content of 97% by weight or more and a particle size of 50×10^{-6} m (50 μ m) or less;**
 - c. **Tungsten materials in the solid form having all of the following:**
 1. **Any of the following material compositions:**
 - i. **Tungsten and alloys containing 97% by weight or more of tungsten;**
 - ii. **Copper infiltrated tungsten containing 80% by weight or more of tungsten; or**
 - iii. **Silver infiltrated tungsten containing 80% by weight or more of tungsten; and**
 2. **Able to be machined to any of the following products:**
 - i. **Cylinders having a diameter of 120 mm or greater and a length of 50 mm or greater;**
 - ii. **Tubes having an inner diameter of 65 mm or greater and a wall thickness of 25 mm or greater and a length of 50 mm or greater; or**
 - iii. **Blocks having a size of 120 mm x 120 mm x 50 mm or greater.**
- 6.C.8. Maraging steels, usable in the systems specified in 1.A. or 19.A.1., having all of the following:
- a. Having an ultimate tensile strength, measured at 20° C, equal to or greater than:
 1. 0.9 GPa in the solution annealed stage; or
 2. 1.5 GPa in the precipitation hardened stage; and

b. Any of the following forms:

1. Sheet, plate or tubing with a wall or plate thickness equal to or less than 5.0 mm; or
2. Tubular forms with a wall thickness equal to or less than 50 mm and having an inner diameter equal to or greater than 270 mm.

Technical Note:

Maraging steels are iron alloys:

- a. *Generally characterised by high nickel, very low carbon content and use substitutional elements or precipitates to produce strengthening and age-hardening of the alloy; and*
- b. *Subjected to heat treatment cycles to facilitate the martensitic transformation process (solution annealed stage) and subsequently age hardened (precipitation hardened stage).*

6.C.9. Titanium-stabilized duplex stainless steel (Ti-DSS) usable in the systems specified in 1.A. or 19.A.1. and having all of the following:

a. Having all of the following characteristics:

1. Containing 17.0 - 23.0 weight percent chromium and 4.5 - 7.0 weight percent nickel;
2. Having a titanium content of greater than 0.10 weight percent; and
3. A ferritic-austenitic microstructure (also referred to as a two-phase microstructure) of which at least 10% is austenite by volume (according to ASTM E-1181-87 or national equivalents); and

b. Any of the following forms:

1. Ingots or bars having a size of 100 mm or more in each dimension;
2. Sheets having a width of 600 mm or more and a thickness of 3 mm or less; or
3. Tubes having an outer diameter of 600 mm or more and a wall thickness of 3 mm or less.

6.D. SOFTWARE

6.D.1. "Software" specially designed or modified for the **operation or maintenance** of equipment specified in 6.B.1.

6.D.2. "Software" specially designed or modified for the equipment specified in 6.B.3., 6.B.4. or 6.B.5.

S/2014/253

6.E. TECHNOLOGY

- 6.E.1. “Technology”, in accordance with the General Technology Note, for the “development”, “production” or “use” of equipment, materials or “software” specified in 6.A., 6.B., 6.C. or 6.D.
- 6.E.2. “Technical data” (including processing conditions) and procedures for the regulation of temperature, pressures or atmosphere in autoclaves or hydroclaves when used for the production of composites or partially processed composites, usable for equipment or materials specified in 6.A. or 6.C.
- 6.E.3. “Technology” for producing pyrolytically derived materials formed on a mould, mandrel or other substrate from precursor gases which decompose in the 1,300° C to 2,900° C temperature range at pressures of 130 Pa (1 mm Hg) to 20 kPa (150 mm Hg) including “technology” for the composition of precursor gases, flow-rates, and process control schedules and parameters.

CATEGORY II; ITEM 7
RESERVED FOR FUTURE USE

S/2014/253

CATEGORY II; ITEM 8
RESERVED FOR FUTURE USE

CATEGORY II; ITEM 9

ITEM 9 INSTRUMENTATION, NAVIGATION AND DIRECTION FINDING

9.A. EQUIPMENT, ASSEMBLIES AND COMPONENTS

- 9.A.1. Integrated flight instrument systems which include gyrostabilisers or automatic pilots, designed or modified for use in the systems specified in 1.A., or 19.A.1. or 19.A.2. and specially designed components therefor.
- 9.A.2. Gyro-astro compasses and other devices which derive position or orientation by means of automatically tracking celestial bodies or satellites, and specially designed components therefor.
- 9.A.3. Linear accelerometers, designed for use in inertial navigation systems or in guidance systems of all types, usable in the systems specified in 1.A., 19.A.1. or 19.A.2., having all of the following characteristics, and specially designed components therefor:
- “Scale factor” “repeatability” less (better) than 1250 ppm; and
 - “Bias” “repeatability” less (better) than 1250 micro g.

Note:

Item 9.A.3. does not control accelerometers specially designed and developed as Measurement While Drilling (MWD) sensors for use in downhole well service operations.

Technical Notes:

- “Bias” is defined as the accelerometer output when no acceleration is applied.*
- “Scale factor” is defined as the ratio of change in output to a change in the input.*
- The measurement of “bias” and “scale factor” refers to one sigma standard deviation with respect to a fixed calibration over a period of one year.*
- “Repeatability” is defined according to IEEE Standard for Inertial Sensor Terminology 528-2001 in the Definitions section paragraph 2.214 titled repeatability (gyro, accelerometer) as follows: “The closeness of agreement among repeated measurements of the same variable under the same operating conditions when changes in conditions or non-operating periods occur between measurements”.*

S/2014/253

- 9.A.4. All types of gyros usable in the systems specified in 1.A., 19.A.1 or 19.A.2., with a rated “drift rate” “stability” of less than 0.5 degrees (1 sigma or rms) per hour in a 1 g environment, and specially designed components therefor.

Technical Notes:

1. “Drift rate” is defined as the component of gyro output that is functionally independent of input rotation and is expressed as an angular rate. (IEEE STD 528-2001 paragraph 2.56)
2. “Stability” is defined as a measure of the ability of a specific mechanism or performance coefficient to remain invariant when continuously exposed to a fixed operating condition. (This definition does not refer to dynamic or servo stability.) (IEEE STD 528-2001 paragraph 2.247)

- 9.A.5. Accelerometers or gyros of any type, designed for use in inertial navigation systems or in guidance systems of all types, specified to function at acceleration levels greater than 100 g, and specially designed components therefor.

Note :

9.A.5. does not include accelerometers that are designed to measure vibration or shock.

- 9.A.6. Inertial or other equipment using accelerometers specified in 9.A.3. or 9.A.5. or gyros specified in 9.A.4. or 9.A.5., and systems incorporating such equipment, and specially designed components therefor.

- 9.A.7. “Integrated navigation systems”, designed or modified for the systems specified in 1.A., 19.A.1. or 19.A.2. and capable of providing a navigational accuracy of 200 m CEP or less.

Technical Note:

An “integrated navigation system” typically incorporates all of the following components:

- a. An inertial measurement device (e.g. an attitude and heading reference system, inertial reference unit, or inertial navigation system);
- b. One or more external sensors used to update the position and/or velocity, either periodically or continuously throughout the flight (e.g. satellite navigation receiver, radar altimeter, and/or Doppler radar); and
- c. Integration hardware and software.

N.B. For integration “software”, see Item 9.D.4.

- 9.A.8. Three axis magnetic heading sensors having all of the following characteristics, and specially designed components therefor:
- a. Internal tilt compensation in pitch (+/- 90 degrees) and having roll (+/- 180 degrees) axes.
 - b. Capable of providing azimuthal accuracy better (less) than 0.5 degrees rms at latitudes of +/- 80 degrees, referenced to local magnetic field; and
 - c. Designed or modified to be integrated with flight control and navigation systems.

Note:

Flight control and navigation systems in Item 9.A.8. include gyrostabilisers, automatic pilots and inertial navigation systems.

9.B. TEST AND PRODUCTION EQUIPMENT

- 9.B.1. "Production equipment", and other test, calibration and alignment equipment, other than that described in 9.B.2., designed or modified to be used with equipment specified in 9.A.

Note:

Equipment specified in 9.B.1. includes the following:

- a. *For laser gyro equipment, the following equipment used to characterise mirrors, having the threshold accuracy shown or better:*
 1. *Scatterometer (10 ppm);*
 2. *Reflectometer (50 ppm);*
 3. *Profilometer (5 Angstroms);*
- b. *For other inertial equipment:*
 1. *Inertial Measurement Unit (IMU) Module Tester;*
 2. *IMU Platform Tester;*
 3. *IMU Stable Element Handling Fixture;*
 4. *IMU Platform Balance Fixture;*
 5. *Gyro Tuning Test Station;*
 6. *Gyro Dynamic Balance Station;*
 7. *Gyro Run-In/Motor Test Station;*
 8. *Gyro Evacuation and Filling Station;*
 9. *Centrifuge Fixture for Gyro Bearings;*
 10. *Accelerometer Axis Align Station;*
 11. *Accelerometer Test Station;*
 12. ***Fiber Optic Gyro Coil Winding Machines.***

S/2014/253

9.B.2. Equipment as follows:

- a. Balancing machines having all the following characteristics:
 1. Not capable of balancing rotors/assemblies having a mass greater than 3 kg;
 2. Capable of balancing rotors/assemblies at speeds greater than 12,500 rpm;
 3. Capable of correcting unbalance in two planes or more; and
 4. Capable of balancing to a residual specific unbalance of 0.2 g mm per kg of rotor mass;
- b. Indicator heads (sometimes known as balancing instrumentation) designed or modified for use with machines specified in 9.B.2.a.;
- c. Motion simulators/rate tables (equipment capable of simulating motion) having all of the following characteristics:
 1. Two axes or more;
 2. Designed or modified to incorporate sliprings or integrated non-contact devices capable of transferring electrical power, signal information, or both; and
 3. Having any of the following characteristics:
 - a. For any single axis having all of the following:
 1. Capable of rates of 400 degrees/s or more, or 30 degrees/s or less; and
 2. A rate resolution equal to or less than 6 degrees/s and an accuracy equal to or less than 0.6 degrees/s;
 - b. Having a worst-case rate stability equal to or better (less) than plus or minus 0.05% averaged over 10 degrees or more; or
 - c. A positioning “accuracy” equal to or less (better) than 5 arc second;
- d. Positioning tables (equipment capable of precise rotary positioning in any axes) having the following characteristics:
 1. Two axes or more; and
 2. A positioning “accuracy” equal to or less (better) than 5 arc second;
- e. Centrifuges capable of imparting accelerations above 100 g and designed or modified to incorporate sliprings or integrated non-contact devices capable of transferring electrical power, signal information, or both.

Notes:

1. *The only balancing machines, indicator heads, motion simulators, rate tables, positioning tables and centrifuges specified in Item 9 are those specified in 9.B.2.*
2. *9.B.2.a. does not control balancing machines designed or modified for dental or other medical equipment.*
3. *9.B.2.c. and 9.B.2.d. do not control rotary tables designed or modified for machine tools or for medical equipment.*
4. *Rate tables not controlled by 9.B.2.c. and providing the characteristics of a positioning table are to be evaluated according to 9.B.2.d.*
5. *Equipment that has the characteristics specified in 9.B.2.d. which also meets the characteristics of 9.B.2.c. will be treated as equipment specified in 9.B.2.c.*
6. *Item 9.B.2.c. applies whether or not sliprings or integrated non-contact devices are fitted at the time of export.*
7. *Item 9.B.2.e. applies whether or not sliprings or integrated non-contact devices are fitted at the time of export.*

9.C. MATERIALS

None.

S/2014/253

9.D. SOFTWARE

- 9.D.1. “Software” specially designed or modified for the “use” of equipment specified in 9.A. or 9.B.
- 9.D.2. Integration “software” for the equipment specified in 9.A.1.
- 9.D.3. Integration “software” specially designed for the equipment specified in 9.A.6.
- 9.D.4. Integration “software”, designed or modified for the “integrated navigation systems” specified in 9.A.7.

Note:

A common form of integration “software” employs Kalman filtering.

9.E. TECHNOLOGY

- 9.E.1. “Technology”, in accordance with the General Technology Note, for the “development”, “production” or “use” of equipment or “software” specified in 9.A., 9.B. or 9.D.

Note:

Equipment or “software” specified in 9.A. or 9.D. may be exported as part of a manned aircraft, satellite, land vehicle, marine/submarine vessel or geophysical survey equipment or in quantities appropriate for replacement parts for such applications.

CATEGORY II; ITEM 10**ITEM 10 FLIGHT CONTROL****10.A. EQUIPMENT, ASSEMBLIES AND COMPONENTS**

10.A.1. Hydraulic, mechanical, electro-optical, or electromechanical flight control systems (including fly-by-wire systems) designed or modified for the systems specified in 1.A.

10.A.2. Attitude control equipment designed or modified for the systems specified in 1.A.

10.A.3. Flight control servo valves designed or modified for the systems in 10.A.1. or 10.A.2., and designed or modified to operate in a vibration environment greater than 10 grms between 20 Hz and 2 kHz.

Note:

Systems, equipment or valves specified in 10.A. may be exported as part of a manned aircraft or satellite or in quantities appropriate for replacement parts for manned aircraft.

10.B. TEST AND PRODUCTION EQUIPMENT

10.B.1. Test, calibration, and alignment equipment specially designed for equipment specified in 10.A.

10.C. MATERIALS

None.

S/2014/253

10.D. SOFTWARE

- 10.D.1. “Software” specially designed or modified for the “use” of equipment specified in 10.A. or 10.B.

Note:

“Software” specified in 10.D.1. may be exported as part of a manned aircraft or satellite or in quantities appropriate for replacement parts for manned aircraft.

10.E. TECHNOLOGY

- 10.E.1. Design “technology” for integration of air vehicle fuselage, propulsion system and lifting control surfaces, designed or modified for the systems specified in 1.A. or 19.A.2., to optimise aerodynamic performance throughout the flight regime of an unmanned aerial vehicle.
- 10.E.2. Design “technology” for integration of the flight control, guidance, and propulsion data into a flight management system, designed or modified for the systems specified in 1.A. or 19.A.1., for optimisation of rocket system trajectory.
- 10.E.3. “Technology”, in accordance with the General Technology Note, for the “development”, “production” or “use” of equipment or “software” specified in 10.A., 10.B. or 10.D.

CATEGORY II; ITEM 11**ITEM 11 AVIONICS****11.A. EQUIPMENT, ASSEMBLIES AND COMPONENTS**

11.A.1. Radar and laser radar systems, including altimeters, designed or modified for use in the systems specified in 1.A.

Technical Note:

Laser radar systems embody specialised transmission, scanning, receiving and signal processing techniques for utilisation of lasers for echo ranging, direction finding and discrimination of targets by location, radial speed and body reflection characteristics.

11.A.2. Passive sensors for determining bearings to specific electromagnetic sources (direction finding equipment) or terrain characteristics, designed or modified for use in the systems specified in 1.A.

11.A.3. Receiving equipment for Global Navigation Satellite Systems (GNSS; e.g. GPS, GLONASS or Galileo), having any of the following characteristics, and specially designed components therefor:

- a. Designed or modified for use in systems specified in 1.A.; or
- b. Designed or modified for airborne applications and having any of the following:
 1. Capable of providing navigation information at speeds in excess of 600 m/s;
 2. Employing decryption, designed or modified for military or governmental services, to gain access to GNSS secure signal/data; or
 3. Being specially designed to employ anti-jam features (e.g. null steering antenna or electronically steerable antenna) to function in an environment of active or passive countermeasures.

Note:

11.A.3.b.2. and 11.A.3.b.3. do not control equipment designed for commercial, civil or "Safety of Life" (e.g. data integrity, flight safety) GNSS services.

S/2014/253

11.A.4. Electronic assemblies and components, designed or modified for use in the systems specified in 1.A. or 19.A. and specially designed for military use and operation at temperatures in excess of 125° C.

Notes:

1. *Equipment specified in 11.A. includes the following:*

- a. *Terrain contour mapping equipment;*
- b. *Scene mapping and correlation (both digital and analogue) equipment;*
- c. *Doppler navigation radar equipment;*
- d. *Passive interferometer equipment;*
- e. *Imaging sensor equipment (both active and passive).*

2. *Equipment specified in 11.A. may be exported as part of a manned aircraft or satellite or in quantities appropriate for replacement parts for manned aircraft.*

11.A.5. Umbilical and interstage electrical connectors specially designed for systems specified in 1.A.1. or 19.A.1.

Technical Note:

Interstage connectors referred to in 11.A.5. also include electrical connectors installed between systems specified in 1.A.1. or 19.A.1. and their “payload”.

11.B. TEST AND PRODUCTION EQUIPMENT

None.

11.C. MATERIALS

None.

11.D. SOFTWARE

11.D.1. “Software” specially designed or modified for the “use” of equipment specified in 11.A.1., 11.A.2. or 11.A.4.

11.D.2. “Software” specially designed for the “use” of equipment specified in 11.A.3.

11.E. TECHNOLOGY

-
- 11.E.1. Design “technology” for protection of avionics and electrical subsystems against Electromagnetic Pulse (EMP) and Electromagnetic Interference (EMI) hazards from external sources, as follows:
- a. Design “technology” for shielding systems;
 - b. Design “technology” for the configuration of hardened electrical circuits and subsystems;
 - c. Design “technology” for determination of hardening criteria for the above.
- 11.E.2. “Technology”, in accordance with the General Technology Note, for the “development”, “production” or “use” of equipment or “software” specified in 11.A. or 11.D.

S/2014/253

CATEGORY II; ITEM 12**ITEM 12 LAUNCH SUPPORT****12.A. EQUIPMENT, ASSEMBLIES AND COMPONENTS**

- 12.A.1. Apparatus and devices, designed or modified for the handling, control, activation and launching of the systems specified in 1.A., 19.A.1., or 19.A.2.
- 12.A.2. Vehicles designed or modified for the transport, handling, control, activation and launching of the systems specified in 1.A.
- 12.A.3. Gravity meters (gravimeters) **or gravity gradiometers, designed or modified for airborne or marine use, usable for systems specified in 1.A., as follows, and specially designed components therefor:**
- a. Gravity meters having all the following:**
- 1. A static or operational accuracy equal to or less (better) than 0.7 milligal (mgal);**
and
 - 2. A time to steady-state registration of two minutes or less;**
- b. Gravity gradiometers.**
- 12.A.4. **Telemetry and telecontrol equipment, including ground equipment, designed or modified for systems specified in 1.A., 19.A.1. or 19.A.2.**

Notes:

- 1. 12.A.4. does not control equipment designed or modified for manned aircraft or satellites.*
- 2. 12.A.4. does not control ground based equipment designed or modified for terrestrial or marine applications.*
- 3. 12.A.4. does not control equipment designed for commercial, civil or "Safety of Life" (e.g. data integrity, flight safety) GNSS services.*

- 12.A.5. Precision tracking systems, usable for systems specified in 1.A., 19.A.1. or 19.A.2. as follows:
- a. Tracking systems which use a code translator installed on the rocket or unmanned aerial vehicle in conjunction with either surface or airborne references or navigation satellite systems to provide real-time measurements of inflight position and velocity;
 - b. Range instrumentation radars including associated optical/infrared trackers with all of the following capabilities:
 1. Angular resolution better than 1.5 mrad;
 2. Range of 30 km or greater with a range resolution better than 10 m rms; and
 3. Velocity resolution better than 3 m/s.

- 12.A.6. Thermal batteries designed or modified for the systems specified in 1.A., 19.A.1. or 19.A.2.

Note:

Item 12.A.6. does not control thermal batteries specially designed for rocket systems or unmanned aerial vehicles that are not capable of a "range" equal to or greater than 300 km.

Technical Note:

Thermal batteries are single use batteries that contain a solid non-conducting inorganic salt as the electrolyte. These batteries incorporate a pyrolytic material that, when ignited, melts the electrolyte and activates the battery.

12.B. TEST AND PRODUCTION EQUIPMENT

None.

12.C. MATERIALS

None.

12.D. SOFTWARE

- 12.D.1. "Software" specially designed or modified for the "use" of equipment specified in 12.A.1.

- 12.D.2. "Software" which processes post-flight, recorded data, enabling determination of vehicle position throughout its flight path, specially designed or modified for systems specified in 1.A., 19.A.1. or 19.A.2.

S/2014/253

12.D.3. “Software” specially designed or modified for the “use” of equipment specified in 12.A.4. or 12.A.5., usable for systems specified in 1.A., 19.A.1. or 19.A.2.

12.E. TECHNOLOGY

12.E.1. “Technology”, in accordance with the General Technology Note, for the “development”, “production” or “use” of equipment or “software” specified in 12.A. or 12.D.

CATEGORY II; ITEM 13**ITEM 13 COMPUTERS****13.A. EQUIPMENT, ASSEMBLIES AND COMPONENTS**

13.A.1. Analogue computers, digital computers or digital differential analysers, designed or modified for use in the systems specified in 1.A., having any of the following characteristics:

- a. Rated for continuous operation at temperatures from below -45°C to above $+55^{\circ}\text{C}$; or
- b. Designed as ruggedised or “radiation hardened”.

13.B. TEST AND PRODUCTION EQUIPMENT

None.

13.C. MATERIALS

None.

13.D. SOFTWARE

None.

13.E. TECHNOLOGY

13.E.1. “Technology”, in accordance with the General Technology Note, for the “development”, “production” or “use” of equipment specified in 13.A.

Note:

Item 13 equipment may be exported as part of a manned aircraft or satellite or in quantities appropriate for replacement parts for manned aircraft.

S/2014/253

CATEGORY II; ITEM 14**ITEM 14 ANALOGUE TO DIGITAL CONVERTERS****14.A. EQUIPMENT, ASSEMBLIES AND COMPONENTS**

14.A.1. Analogue-to-digital converters, usable in the systems specified in 1.A., having any of the following characteristics:

- a. Designed to meet military specifications for ruggedised equipment; or
- b. Designed or modified for military use and being any of the following types:
 1. Analogue-to-digital converter “microcircuits”, which are “radiation-hardened” or have all of the following characteristics:
 - a. Having a quantisation corresponding to 8 bits or more when coded in the binary system;
 - b. Rated for operation in the temperature range from below -54°C to above $+125^{\circ}\text{C}$; and
 - c. Hermetically sealed; or
 2. Electrical input type analogue-to-digital converter printed circuit boards or modules, having all of the following characteristics:
 - a. Having a quantisation corresponding to 8 bits or more when coded in the binary system;
 - b. Rated for operation in the temperature range from below -45°C to above $+55^{\circ}\text{C}$; and
 - c. Incorporating “microcircuits” specified in 14.A.1.b.1.

14.B. TEST AND PRODUCTION EQUIPMENT

None.

14.C. MATERIALS

None.

14.D. SOFTWARE

None.

14.E. TECHNOLOGY

14.E.1. "Technology", in accordance with the General Technology Note, for the "development", "production" or "use" of equipment specified in 14.A.

S/2014/253

CATEGORY II; ITEM 15**ITEM 15 TEST FACILITIES AND EQUIPMENT****15.A. EQUIPMENT, ASSEMBLIES AND COMPONENTS**

None.

15.B. TEST AND PRODUCTION EQUIPMENT

15.B.1. Vibration test equipment, usable for the systems specified in 1.A., 19.A.1. or 19.A.2. or the subsystems specified in 2.A. or 20.A., and components therefor, as follows:

- a. Vibration test systems employing feedback or closed loop techniques and incorporating a digital controller, capable of vibrating a system at an acceleration equal to or greater than 10 grms between 20 Hz and 2 kHz while imparting forces equal to or greater than 50 kN, measured "bare table";
- b. Digital controllers, combined with specially designed vibration test "software", with a "real-time control bandwidth" greater than 5 kHz and designed for use with vibration test systems specified in 15.B.1.a.;

Technical Note:

"Real-time control bandwidth" is defined as the maximum rate at which a controller can execute complete cycles of sampling, processing data and transmitting control signals.

- c. Vibration thrusters (shaker units), with or without associated amplifiers, capable of imparting a force equal to or greater than 50 kN, measured "bare table", and usable in vibration test systems specified in 15.B.1.a.;
- d. Test piece support structures and electronic units designed to combine multiple shaker units into a complete shaker system capable of providing an effective combined force equal to or greater than 50 kN, measured "bare table", and usable in vibration test systems specified in 15.B.1.a.

Technical Note:

Vibration test systems incorporating a digital controller are those systems, the functions of which are, partly or entirely, automatically controlled by stored and digitally coded electrical signals.

- 15.B.2. “Aerodynamic test facilities” for speeds of Mach 0.9 or more, usable for the systems specified in 1.A. or 19.A. or the subsystems specified in 2.A. or 20.A.

Note:

Item 15.B.2 does not control wind-tunnels for speeds of Mach 3 or less with dimension of the “test cross section size” equal to or less than 250 mm.

Technical Notes:

1. “Aerodynamic test facilities” includes wind tunnels and shock tunnels for the study of airflow over objects.
 2. “Test cross section size” means the diameter of the circle, or the side of the square, or the longest side of the rectangle, or the major axis of the ellipse at the largest “test cross section” location. “Test cross section” is the section perpendicular to the flow direction.
- 15.B.3. Test benches/stands, usable for the systems specified in 1.A., 19.A.1. or 19.A.2. or the subsystems specified in 2.A. or 20.A., which have the capacity to handle solid or liquid propellant rockets, motors or engines having a thrust greater than 68kN, or which are capable of simultaneously measuring the three axial thrust components.
- 15.B.4. Environmental chambers as follows, usable for the systems specified in 1.A. or 19.A. or the subsystems specified in 2.A. or 20.A.:

- a. Environmental chambers capable of simulating all the following flight conditions:

1. Having any of the following:

- a. Altitude equal to or greater than 15 km; or

- b. Temperature range from below -50° C to above 125° C; and

2. Incorporating, or designed or modified to incorporate, a shaker unit or other vibration test equipment to produce vibration environments equal to or greater than 10 grms, measured “bare table”, between 20 Hz and 2 kHz **while** imparting forces equal to or greater than 5 kN;

S/2014/253

Technical Notes:

1. Item 15.B.4.a.2. describes systems that are capable of generating a vibration environment with a single wave (e.g. a sine wave) and systems capable of generating a broad band random vibration (i.e. power spectrum).
2. In Item 15.B.4.a.2., *designed or modified* means the environmental chamber provides appropriate interfaces (e.g. sealing devices) to incorporate a shaker unit or other vibration test equipment as specified in this Item.

b. Environmental chambers capable of simulating all of the following flight conditions:

1. Acoustic environments at an overall sound pressure level of 140 dB or greater (referenced to 2×10^{-5} N/m²) or with a total rated acoustic power output of 4 kW or greater; and
 2. Any of the following:
 - a. Altitude equal to or greater than 15 km; or
 - b. Temperature range from below -50°C to above 125°C.
- 15.B.5. Accelerators capable of delivering electromagnetic radiation produced by bremsstrahlung from accelerated electrons of 2 MeV or greater, and equipment containing those accelerators, usable for the systems specified in 1.A., 19.A.1. or 19.A.2. or the subsystems specified in 2.A. or 20.A.

Note:

15.B.5. does not control equipment specially designed for medical purposes.

Technical Note:

In Item 15.B. "bare table" means a flat table, or surface, with no fixture or fittings.

15.C. MATERIALS

None.

15.D. SOFTWARE

- 15.D.1. "Software" specially designed or modified for the "use" of equipment specified in 15.B. usable for testing systems specified in 1.A., 19.A.1. or 19.A.2. or subsystems specified in 2.A. or 20.A.

15.E. TECHNOLOGY

- 15.E.1. “Technology”, in accordance with the General Technology Note, for the “development”, “production” or “use” of equipment or “software” specified in 15.B. or 15.D.

S/2014/253

CATEGORY II; ITEM 16**ITEM 16 MODELLING-SIMULATION AND DESIGN INTEGRATION****16.A. EQUIPMENT, ASSEMBLIES AND COMPONENTS**

- 16.A.1. Specially designed hybrid (combined analogue/digital) computers for modelling, simulation or design integration of systems specified in 1.A. or the subsystems specified in 2.A.

Note:

This control only applies when the equipment is supplied with “software” specified in 16.D.1.

16.B. TEST AND PRODUCTION EQUIPMENT

None.

16.C. MATERIALS

None.

16.D. SOFTWARE

- 16.D.1. “Software” specially designed for modelling, simulation, or design integration of the systems specified in 1.A. or the subsystems specified in 2.A or 20.A.

Technical Note:

The modelling includes in particular the aerodynamic and thermodynamic analysis of the systems.

16.E. TECHNOLOGY

- 16.E.1. “Technology”, in accordance with the General Technology Note, for the “development”, “production” or “use” of equipment or “software” specified in 16.A. or 16.D.

CATEGORY II; ITEM 17**ITEM 17 STEALTH****17.A. EQUIPMENT, ASSEMBLIES AND COMPONENTS**

17.A.1. Devices for reduced observables such as radar reflectivity, ultraviolet/infrared signatures and acoustic signatures (i.e. stealth technology), for applications usable for the systems specified in 1.A. or 19.A. or the subsystems specified in 2.A. or 20.A.

17.B. TEST AND PRODUCTION EQUIPMENT

17.B.1. Systems, specially designed for radar cross section measurement, usable for the systems specified in 1.A., 19.A.1. or 19.A.2. or the subsystems specified in 2.A.

17.C. MATERIALS

17.C.1. Materials for reduced observables such as radar reflectivity, ultraviolet/infrared signatures and acoustic signatures (i.e. stealth technology), for applications usable for the systems specified in 1.A. or 19.A. or the subsystems specified in 2.A.

Notes:

1. *17.C.1. includes structural materials and coatings (including paints), specially designed for reduced or tailored reflectivity or emissivity in the microwave, infrared or ultraviolet spectra.*
2. *17.C.1. does not control coatings (including paints) when specially used for thermal control of satellites.*

17.D. SOFTWARE

17.D.1. "Software" specially designed for reduced observables such as radar reflectivity, ultraviolet/infrared signatures and acoustic signatures (i.e. stealth technology), for applications usable for the systems specified in 1.A. or 19.A. or the subsystems specified in 2.A.

S/2014/253

Note:

17.D.1. includes “software” specially designed for analysis of signature reduction.

17.E. TECHNOLOGY

- 17.E.1. “Technology”, in accordance with the General Technology Note, for the “development”, “production” or “use” of equipment, materials or “software” specified in 17.A., 17.B., 17.C. or 17.D.

Note:

17.E.1. includes databases specially designed for analysis of signature reduction.

CATEGORY II; ITEM 18**ITEM 18 NUCLEAR EFFECTS PROTECTION****18.A. EQUIPMENT, ASSEMBLIES AND COMPONENTS**

- 18.A.1. "Radiation Hardened" "microcircuits" usable in protecting rocket systems and unmanned aerial vehicles against nuclear effects (e.g. Electromagnetic Pulse (EMP), X-rays, combined blast and thermal effects), and usable for the systems specified in 1.A.
- 18.A.2. "Detectors" specially designed or modified to protect rocket systems and unmanned aerial vehicles against nuclear effects (e.g. Electromagnetic Pulse (EMP), X-rays, combined blast and thermal effects), and usable for the systems specified in 1.A.

Technical Note:

A 'detector' is defined as a mechanical, electrical, optical or chemical device that automatically identifies and records, or registers a stimulus such as an environmental change in pressure or temperature, an electrical or electromagnetic signal or radiation from a radioactive material. This includes devices that sense by one time operation or failure.

- 18.A.3. Radomes designed to withstand a combined thermal shock greater than $4.184 \times 10^6 \text{ J/m}^2$ accompanied by a peak over pressure of greater than 50 kPa, usable in protecting rocket systems and unmanned aerial vehicles against nuclear effects (e.g. Electromagnetic Pulse (EMP), X-rays, combined blast and thermal effects), and usable for the systems specified in 1.A.

18.B. TEST AND PRODUCTION EQUIPMENT

None.

18.C. MATERIALS

None.

18.D. SOFTWARE

None.

S/2014/253

18.E. TECHNOLOGY

- 18.E.1. “Technology”, in accordance with the General Technology Note, for the “development”, “production” or “use” of equipment specified in 18.A.

CATEGORY II; ITEM 19**ITEM 19 OTHER COMPLETE DELIVERY SYSTEMS****19.A. EQUIPMENT, ASSEMBLIES AND COMPONENTS**

- 19.A.1. Complete rocket systems (including ballistic missile systems, space launch vehicles, and sounding rockets), not specified in 1.A.1., capable of a “range” equal to or greater than 300 km.
- 19.A.2. Complete unmanned aerial vehicle systems (including cruise missile systems, target drones and reconnaissance drones), not specified in 1.A.2., capable of a “range” equal to or greater than 300 km.
- 19.A.3. Complete unmanned aerial vehicle systems, not specified in 1.A.2. or 19.A.2., having all of the following:
- a. Having any of the following:
 1. *An autonomous flight control and navigation capability; or*
 2. Capability of controlled flight out of the direct vision range involving a human operator; and
 - b. Having any of the following:
 1. Incorporating an aerosol dispensing system/mechanism with a capacity greater than 20 litres; or
 2. Designed or modified to incorporate an aerosol dispensing system/mechanism with a capacity greater than 20 litres.

Note:

Item 19.A.3. does not control model aircraft, specially designed for recreational or competition purposes.

Technical Notes:

1. *An aerosol consists of particulate or liquids other than fuel components, by-products or additives, as part of the “payload” to be dispersed in the atmosphere. Examples of aerosols include pesticides for crop dusting and dry chemicals for cloud seeding.*

S/2014/253

2. *An aerosol dispensing system/mechanism contains all those devices (mechanical, electrical, hydraulic, etc.), which are necessary for storage and dispersion of an aerosol into the atmosphere. This includes the possibility of aerosol injection into the combustion exhaust vapour and into the propeller slip stream.*

19.B. TEST AND PRODUCTION EQUIPMENT

- 19.B.1. "Production facilities" specially designed for the systems specified in 19.A.1 or 19.A.2.

19.C. MATERIALS

None.

19.D. SOFTWARE

- 19.D.1. "Software" which coordinates the function of more than one subsystem, specially designed or modified for "use" in the systems specified in 19.A.1. or 19.A.2.

19.E. TECHNOLOGY

- 19.E.1. "Technology", in accordance with the General Technology Note, for the "development", "production" or "use" of equipment specified in 19.A. 1. or 19.A.2.

CATEGORY II; ITEM 20ITEM 20 OTHER COMPLETE SUBSYSTEMS

20.A. EQUIPMENT, ASSEMBLIES AND COMPONENTS

20.A.1. Complete subsystems as follows:

a. Individual rocket stages, not specified in 2.A.1., usable in systems specified in 19.A.;

b. Rocket propulsion subsystems, not specified in 2.A.1., usable in the systems specified in 19.A.1., as follows:

1. Solid propellant rocket motors or hybrid rocket motors having a total impulse capacity equal to or greater than 8.41×10^5 Ns, but less than 1.1×10^6 Ns;

2. Liquid propellant rocket engines integrated, or designed or modified to be integrated, into a liquid propellant propulsion system which has a total impulse capacity equal to or greater than 8.41×10^5 Ns, but less than 1.1×10^6 Ns;

20.B. TEST AND PRODUCTION EQUIPMENT

20.B.1. "Production facilities" specially designed for the subsystems specified in 20.A.

20.B.2. "Production equipment" specially designed for the subsystems specified in 20.A.

20.C. MATERIALS

None.

20.D. SOFTWARE

20.D.1. "Software" specially designed or modified for the systems specified in 20.B.1.

20.D.2. "Software", not specified in 20.D.1., specially designed or modified for the "use" of rocket motors or engines specified in 20.A.1.b.

20.E. TECHNOLOGY

20.E.1. "Technology", in accordance with the General Technology Note, for the "development", "production" or "use" of equipment or "software" specified in 20.A., 20.B. or 20.D.

UNITS, CONSTANTS, ACRONYMS AND ABBREVIATIONS

UNITS, CONSTANTS, ACRONYMS AND ABBREVIATIONS USED IN THIS ANNEX

ABEC	Annular Bearing Engineers Committee
ABMA	American Bearing Manufactures Association
ANSI	American National Standards Institute
Angstrom	1×10^{-10} metre
ASTM	American Society for Testing and Materials
bar	unit of pressure
°C	degree Celsius
cc	cubic centimetre
CAS	Chemical Abstracts Service
CEP	Circle of Equal Probability
dB	decibel
g	gram; also, acceleration due to gravity
GHz	gigahertz
GNSS	Global Navigation Satellite System e.g. “Galileo” “GLONASS” – Global’naya Navigatsionnaya Sputnikovaya Sistema “GPS” – Global Positioning System
h	hour
Hz	hertz
HTPB	Hydroxy –Terminated Polybutadiene
ICAO	International Civil Aviation Organisation
IEEE	Institute of Electrical and Electronic Engineers
IR	Infrared

ISO	International Organization for Standardization
J	joule
JIS	Japanese Industrial Standard
K	Kelvin
kg	kilogram
kHz	kilohertz
km	kilometre
kN	kilonewton
kPa	kilopascal
kW	kilowatt
m	metre
MeV	million electron volt or mega electron volt
MHz	megahertz
milligal	10^{-5} m/s^2 (also called mGal, mgal or milligalileo)
mm	millimetre
mm Hg	mm of mercury
MPa	megapascal
mrad	milliradian
ms	millisecond
μm	micrometre
N	newton
Pa	pascal
ppm	parts per million
rads (Si)	radiation absorbed dose
RF	radio frequency
rms	root mean square

S/2014/253

rpm	revolutions per minute
RV	Re-entry Vehicles
s	second
Tg	glass transition temperature
Tyler	Tyler mesh size, or Tyler standard sieve series
UAV	Unmanned Aerial Vehicle
UV	Ultra violet

TABLE OF CONVERSIONS

<u>TABLE OF CONVERSIONS USED IN THIS ANNEX</u>		
Unit (from)	Unit (to)	Conversion
bar	pascal (Pa)	1 bar = 100 kPa
g (gravity)	m/s ²	1 g = 9.806 65 m/s ²
mrاد (millirad)	degrees (angle)	1 mrاد ≈ 0.0573°
rads	ergs/gram of Si	1 rad (Si) = 100 ergs/gram of silicon (= 0.01 gray [Gy])
Tyler 250 mesh	mm	for a Tyler 250 mesh, mesh opening 0.063 mm

S/2014/253

Statement of Understanding

Members agree that, in those cases where the term “national equivalents” are specifically allowed as alternatives to specified International Standards, the technical methods and parameters embodied in the national equivalent would ensure that the requirements of the standard set by the specified International Standards are met.

United Nations

S/2016/308

**Security Council**Distr.: General
4 April 2016

Original: English

**Letter dated 4 April 2016 from the Chair of the Security Council
Committee established pursuant to resolution 1718 (2006)
addressed to the President of the Security Council**

On behalf of the Committee established pursuant to resolution 1718 (2006), I have the honour to transmit herewith the report of the Committee dated 29 March 2016, submitted in accordance with paragraph 25 of resolution 2270 (2016) (see annex).

I would appreciate it if the present letter and its annex were brought to the attention of the members of the Security Council and issued as a document of the Council.

(Signed) Román **Oyarzun Marchesi**
Chair
Security Council Committee established
pursuant to resolution 1718 (2006)

16-05424 (E) 060416



Please recycle A small recycling symbol consisting of three chasing arrows forming a triangle.



S/2016/308

Annex**Report of the Security Council Committee established pursuant to resolution 1718 (2006) prepared in accordance with paragraph 25 of resolution 2270 (2016)**

On 2 March 2016, the Security Council, by its resolution 2270 (2016), decided to adjust the measures imposed by paragraph 8 of resolution 1718 (2006) and resolution 2270 (2016) through the designation of additional goods, and directed the Committee to undertake its tasks to that effect and to report to the Council within 15 days of the adoption of resolution 2270 (2016).

In order to fulfil those tasks, the Committee considered a list of weapons of mass destruction-related items, materials, equipment, goods and technology to be identified and designated as sensitive goods.

All items, materials, equipment, goods and technology contained in the following list are only for the purpose of implementation of resolution 2270 (2016) and shall not be considered as setting precedents for international and multilateral mechanisms, regimes, instruments, principles and practices in the spheres of non-proliferation and export control.

On 29 March 2016, the Committee acted in line with the Security Council's directive and approved the following:

Items, materials, equipment, goods and technology**A. Nuclear- and/or missile-usable items**

1. Ring magnets: permanent magnet materials having both of the following characteristics:
 - (a) Ring-shaped magnet with a relation between outer and inner diameter smaller or equal to 1.6:1;
 - (b) Made of any of the following magnetic materials: aluminium-nickel-cobalt, ferrites, samarium-cobalt or neodymium-iron-boron.
2. Maraging steel having both of the following characteristics:
 - (a) "Capable of" an ultimate tensile strength of 1,500 MPa or more at 293 K (20°C);
 - (b) In bar or tube form, with an outer diameter of 75 mm or greater.
3. Magnetic alloy materials in sheet or thin strip form having both of the following characteristics:
 - (a) Thickness of 0.05 mm or less; or height of 25 mm or less;
 - (b) Made of any of the following magnetic alloy materials: iron-chromium-cobalt, iron-cobalt-vanadium, iron-chromium-cobalt-vanadium or iron-chromium.
4. Frequency changers (also known as converters or inverters) having all of the following characteristics, and specially designed software therefor:
 - (a) Multiphase frequency output;

(b) Capable of providing power of 40 W or greater;

(c) Capable of operating anywhere (at any one point or more) within the frequency range between 600 Hz and 2,000 Hz.

Technical notes:

1. Frequency changers are also known as converters or inverters.
2. The functionality specified above may be met by certain equipment described or marketed as electronic test equipment, AC power supplies, variable speed motor drives or variable frequency drives.

5. High-strength aluminium alloy having both of the following characteristics:

(a) "Capable of" an ultimate tensile strength of 415 MPa or more at 293 K (20°C);

(b) In bar or tube form, with an outer diameter of 75 mm or greater.

Technical note: The phrase "capable of" encompasses aluminium alloy before or after heat treatment.

6. Fibrous or filamentary materials and prepregs as follows:

(a) Carbon, aramid or glass "fibrous or filamentary materials" having both of the following characteristics:

(i) A "specific modulus" exceeding 3.18×10^6 m;

(ii) A "specific tensile strength" exceeding 76.2×10^3 m;

(b) Prepregs: thermoset resin-impregnated continuous "yarns", "rovings", "tows" or "tapes" with a width of 30 mm or less, made from carbon, aramid or glass "fibrous or filamentary materials" controlled in (a) above.

7. Filament winding machines and related equipment as follows:

(a) Filament winding machines having all of the following characteristics:

(i) Having motions for positioning, wrapping and winding fibres coordinated and programmed in two or more axes;

(ii) Specially designed to fabricate composite structures or laminates from "fibrous or filamentary materials";

(iii) Capable of winding cylindrical tubes of diameter of 75 mm or greater;

(b) Coordinating and programming controls for filament winding machines specified in (a) above;

(c) Mandrels for filament winding machines specified in (a) above.

8. Flow-forming machines as described in INFCIRC/254/Rev.9/Part 2 and S/2014/253

9. Laser welding equipment

10. 4- and 5-axis CNC machine tools

11. Plasma cutting equipment

12. Metal hydrides, such as zirconium hydride

S/2016/308

B. Chemical/biological weapons-usable items

1. Additional chemicals suitable for the production of chemical warfare agents:

• Aluminium chloride	(7446-70-0)
• Dichloromethane	(75-09-2)
• N,N-Dimethylaniline	(121-69-7)
• Isopropyl bromide	(75-26-3)
• Isopropyl ether	(108-20-3)
• Monoisopropylamine	(75-31-0)
• Potassium bromide	(7758-02-3)
• Pyridine	(110-86-1)
• Sodium bromide	(7647-15-6)
• Sodium metal	(7440-23-5)
• Sulfur trioxide	(7446-11-9)
• Tributylamine	(102-82-9)
• Triethylamine	(121-44-8)
• Trimethylamine	(75-50-3)

2. Reaction vessels, reactors, agitators, heat exchangers, condensers, pumps, valves, storage tanks, containers, receivers, and distillation or absorption columns that meet performance parameters described in [S/2006/853](#) and Corr.1

– Single-seal pumps with manufacturer's specified maximum flow rate greater than 0.6 m³/h and casings (pump bodies), preformed casing liners, impellers, rotors or jet pump nozzles designed for such pumps, in which all surfaces that come into direct contact with the chemical(s) being processed are made from any of the following materials:

- (a) Nickel or alloys with more than 40 per cent nickel by weight;
- (b) Alloys with more than 25 per cent nickel and 20 per cent chromium by weight;
- (c) Fluoropolymers (polymeric or elastomeric materials with more than 35 per cent fluorine by weight);
- (d) Glass or glass-lined (including vitrified or enamelled coating);
- (e) Graphite or carbon-graphite;
- (f) Tantalum or tantalum alloys;
- (g) Titanium or titanium alloys;
- (h) Zirconium or zirconium alloys;

- (i) Ceramics;
 - (j) Ferrosilicon (high silicon iron alloys); or
 - (k) Niobium (columbium) or niobium alloys.
3. Conventional or turbulent airflow clean-air rooms and self-contained fan-HEPA filter units that could be used for P3 or P4 (BSL 3, BSL 4, L3, L4) containment facilities.
-