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OF
COMMERCE

North Korea Ballistic Missile Procurement Advisory¹

The U.S. Department of State's Bureau of International Security and Nonproliferation, the Department of the Treasury's Office of Foreign Assets Control (OFAC), and the Department of Commerce's Bureau of Industry and Security (BIS) are issuing this joint advisory to alert persons globally to North Korea's ballistic missile procurement activities. This advisory identifies key North Korean procurement entities and deceptive techniques employed in the operation and support of the regime's ballistic missile program. Relevant industry stakeholders in the United States and abroad should be aware of these activities and techniques in order to implement appropriate controls to ensure compliance with applicable national and multilateral legal requirements and mitigate sanctions risk. This advisory also contains an annex listing key items, including materials and equipment, used in the North Korean ballistic missile program. North Korea's ballistic missile procurement activities expose the electronics, chemical, metals, and materials industries as well as the financial, transportation, and logistics sectors to the risk of possibly violating United Nations (UN) and U.S. sanctions, as well as the imposition of sanctions and penalties under various U.S. legal authorities. Individuals and entities producing or trading in these products, or providing related financial or other services, may wish to ensure that they can make informed decisions about providing products or services to specific customers, based on the risks associated with those specific customers; implementing appropriate Know-Your-Customer (KYC) policies and procedures should make this possible.

The United States is committed to disrupting North Korea's ballistic missile procurement network and promoting accountability for entities and individuals assisting or providing support to North Korea's ballistic missile program, regardless of the location or nationality of those providing such assistance or support. The U.S. Treasury and State Departments have designated for sanctions dozens of entities and individuals associated with North Korea's missile program, including those based in third countries, and the United States has pursued law enforcement investigations and prosecutions against individuals and entities suspected of involvement in violating U.S. sanctions intended to impede North Korea's ballistic missile and weapons of mass destruction programs. Many of these individuals and entities have also been designated by the UN Security Council.

Industry is on the front line of detecting and thwarting North Korea's procurement attempts. It is critical that private sector companies and individuals be aware of key items sought by the North Korean weapons programs, North Korean procurement tactics and techniques, the risks of involvement in North Korea's ballistic missile-related procurements, and the potential consequences they face if determined to be engaging in conduct that is subject to UN and/or U.S. sanctions authorities. Industry should be particularly vigilant regarding any involvement in the transfer of sensitive technology to North Korean entities or individuals linked to ballistic

¹ The guidance in this document is not intended to be, nor should it be interpreted as, comprehensive or as imposing requirements under U.S. law or otherwise addressing any particular requirements under applicable U.S. laws or regulations.

missile programs of concern to the United States and the UN, particularly through third parties that conceal their North Korean relationships, affiliations, or end-users.

Key North Korean Ballistic Missile Procurement Entities

Many of the entities and individuals (including non-North Korean entities and individuals) supporting or providing assistance to North Korea's ballistic missile program and related procurement activities have been designated for sanctions by the UN and/or the United States.^{2,3,4} Listed below are some of the key North Korean entities involved in the country's procurement of ballistic missile-related items, including technology, all of which have been designated by both the UN and the United States. This list is illustrative and not exhaustive; please refer to OFAC's List of Specially Designated Nationals and Blocked Persons (SDN List) for a comprehensive, consolidated, and searchable list of sanctioned persons.⁵ (The UN Security Council or the 1718 Committee may designate for targeted sanctions (asset freeze and, for individuals, travel ban) any individual or entity engaged in or providing support for, including through other illicit means, North Korea's nuclear-related, other weapons of mass destruction-related, and ballistic missile-related programs).

Korea Mining Development Trading Corporation (KOMID), aka Changgwang Sinyong Corporation, External Technology General Corporation, Korea Kumryong Trading Company, Korean Mining and Industrial Development Corporation:⁶ KOMID is North Korea's primary arms dealer and main exporter of goods, including equipment, related to ballistic missiles and conventional weapons. KOMID was sanctioned pursuant to Executive Order (E.O.) 13382 in 2005. It was designated for sanctions under UN Security Council resolution (UNSCR) 1718 in 2009. KOMID has offices and representatives in multiple countries around the world, including Iran, and facilitates weapons sales for the North Korean government.⁷ KOMID has also acquired sensitive technology via its procurement arm, the Korea Heungjin Trading Company, which procured an advanced digital controller with applications in missile design.

Munitions Industry Department (MID), aka Military Supplies Industry Department:⁸ MID is involved in key aspects of the DPRK's missile program, including the research, development and production of the DPRK's ballistic missiles, such as the Taepo Dong-2. MID also oversees the DPRK's nuclear program. MID was sanctioned pursuant to E.O. 13382 in 2010 and by the UN under UNSCR 2270 in 2016.

Second Academy of Natural Sciences (SANS), aka National Defense Academy:⁹ SANS is a national-level organization responsible for research and development of North Korea's advanced weapons systems, including missiles and likely nuclear weapons. SANS uses a number of subordinate organizations to obtain technology, equipment, and information from overseas for use in North Korea's missile and probably nuclear weapons programs. SANS is subordinate to MID. SANS was sanctioned pursuant to E.O. 13382 and by the UN under UNSCR 2094 in 2013.

² <https://scsanctions.un.org/consolidated/>

³ <https://www.state.gov/democratic-peoples-republic-of-korea-sanctions/>

⁴ <https://www.treasury.gov/resource-center/sanctions/Programs/pages/nkorea.aspx>

⁵ OFAC, "List of Specially Designated Nationals and Blocked Persons (SDN List)," <https://www.treasury.gov/resource-center/sanctions/sdn-list/pages/default.aspx>

⁶ <https://www.treasury.gov/press-center/press-releases/Pages/j19733.aspx>

⁷ <https://www.treasury.gov/press-center/press-releases/Pages/j19733.aspx>

⁸ <https://www.treasury.gov/press-center/press-releases/Pages/tg840.aspx>

⁹ <https://www.treasury.gov/press-center/press-releases/Pages/tg840.aspx>

Second Economic Committee (SEC):¹⁰ SEC is involved in key aspects of the DPRK's missile program. SEC is responsible for overseeing the production of the DPRK's ballistic missiles. SEC, itself subordinate to MID, also directs the activities of KOMID. SEC was sanctioned pursuant to E.O. 13382 in 2010 and by the UN under UNSCR 2270 in 2016.

Korea Tangun Trading Corporation (Tangun), aka Korea Kuryonggang Trading Corporation, Ryungsong Trading Corporation, Ryungseng Trading Corporation:¹¹ Tangun is subordinate to SANS and is primarily responsible for the procurement of commodities and technologies to support North Korea's defense research and development programs, including, but not limited to, weapons of mass destruction and delivery system programs, and materials that are controlled or prohibited under relevant multilateral export control regimes. Tangun was sanctioned pursuant to E.O. 13382 in 2010 and by the UN under UNSCR 1874 in 2009.

Korea Ryonbong General Corporation (Ryonbong), aka Korea Yonbong General Corporation:¹² Ryonbong is a defense conglomerate specializing in acquisition for North Korea's defense industries and support to that country's military-related sales. Ryonbong was sanctioned pursuant to E.O. 13382 in 2005. It was also designated for sanctions under UNSCR 1718 in 2009. Furthermore, the United States and the UN also designated Korea Hyoksin Trading Corporation, a subordinate of Ryonbong, in 2009 under E.O. 13382 and UNSCR 1874.

North Korean Procurement Tactics

As reflected in the March 2020 UN Democratic People's Republic of Korea (DPRK) Panel of Experts (PoE) report,¹³ North Korea relies on foreign-sourced ballistic missile-related components that it cannot produce domestically. To obtain these components, North Korea uses an extensive overseas network of procurement agents, including officials who operate from North Korean diplomatic missions or trade offices, as well as third-country nationals and foreign companies. In recent years, the United States has sanctioned multiple North Korean nationals operating abroad and acting on behalf of designated North Korean ballistic missile entities. For example, OFAC in July 2019 designated Kim Su Il, an individual acting in Vietnam on behalf of the Munitions Industry Department. On January 24, 2018, OFAC designated ten Korea Ryonbong General Corporation representatives based mainly in China and Russia, including one official identified as the vice consul of the North Korean consulate in Nakhodka, Russia, underscoring the key role that North Korean diplomats and foreign-posted North Korean procurement representatives play in sanctions evasion and ballistic missile-related procurement. North Korean officials accredited as diplomats to one country have also been detected attempting to acquire sensitive technology in neighboring countries. For example, according to the PoE report in 2013, two North Korean diplomats based at the North Korean Trade Office in Belarus were arrested for attempting to gain access to ballistic missile-related design information in Ukraine in 2011.¹⁴

North Korea also collaborates with foreign-incorporated companies, such as Chinese and Russian entities, to acquire foreign-sourced basic commercial components. These entities will purchase items and consolidate and repackage them for onward shipment to North Korea, concealing the true end-user from the manufacturers and distributors of the items. Moreover, procurement entities mislabel sensitive goods in export documentation, falsely declaring specialized materials to instead be general-purpose items that are widely commercially available. In 2013, the PoE found that, in the debris from a December 2012 DPRK rocket launch, the fuselage that the PoE was investigating included components such as sensors, pressure switches, wire cables, and other

¹⁰ <https://www.treasury.gov/press-center/press-releases/Pages/tg840.aspx>

¹¹ <https://www.treasury.gov/press-center/press-releases/Pages/tg840.aspx>

¹² <https://www.treasury.gov/press-center/press-releases/Pages/tg260.aspx>

¹³ <https://undocs.org/S/2020/151>

¹⁴ <https://undocs.org/S/2013/337>

electronic devices, some of which were foreign made.¹⁵ The PoE’s investigation into the supply chain that procured some of the components described above indicates that they were procured indirectly through multiple intermediaries.¹⁶ Most of these components do not meet the thresholds of the UNSCR control lists—or national export control lists—and are widely available from overseas distributors, highlighting the importance of complying with “catch-all” controls, as required by UNSCR 2270. These catch-all controls are frequently and effectively employed by the United States and other UN Member States to require a national authorization, e.g. a license or permit, for unlisted items if there is any risk of WMD-related end-use or if the end-user is involved, or is suspected to be involved, in the production or development of weapons of mass destruction. For example, in Section 744.3 of the Export Administration Regulations (EAR), companies are required to obtain a license for destinations where their products may be of use in ballistic missile programs. While the United States maintains comprehensive sanctions upon North Korea for all items subject to the EAR, the catch-all control specified in Section 744.3 of the EAR emphasizes the risk of diversion through other countries to North Korea of uncontrolled, and seemingly innocuous, items that may be used in North Korea’s ballistic missile programs. Examples of these items are listed in the Annex, and further guidance on scrutinizing potential clients is provided below.

The following are additional examples of OFAC designations of third-country individuals and entities for assisting North Korea’s weapons procurement efforts. This list is also illustrative and not exhaustive; please refer to OFAC’s SDN List for a comprehensive, consolidated, and searchable list of sanctioned persons.¹⁷

1. Gefest-M LLC and its director, Ruben Kirakosyan¹⁸
2. Dandong Rich Earth Trading Co., LTD¹⁹
3. Mingzheng International Trading Limited^{20,21}
4. Ardis-Bearings LLC and its director, Igor Aleksandrovich Michurin²²
5. Beijing Chengxing Trading Co. LTD
6. Dandong Jinxiang Trade Co. LTD²³
7. Dandong Hongxiang Industrial Development Co. LTD and its employees Jinhua Hong, Chuanxu Luo, Xiaohong Ma, and Jianshu Zhou²⁴

Minimizing Risk

The State, Treasury, and Commerce Departments strongly encourage persons subject to U.S. jurisdiction, as well as foreign persons that conduct transactions with or involving the United States and/or U.S. persons, including the making of exports and reexports of items that are subject to U.S. export controls, to employ a risk-based approach to sanctions compliance. This approach may include the development, implementation, and routine updating of a sanctions compliance program adapted to such persons’ particular business models. While

¹⁵ <https://undocs.org/S/2013/337>

¹⁶ https://www.un.org/securitycouncil/sanctions/1718/panel_experts/reports

¹⁷ OFAC, “List of Specially Designated Nationals and Blocked Persons (SDN List),” <https://www.treasury.gov/resource-center/sanctions/sdn-list/pages/default.aspx>

¹⁸ <https://www.treasury.gov/press-center/press-releases/Pages/sm0148.aspx>

¹⁹ “Treasury Targets Chinese and Russian Entities and Individuals Supporting the North Korean Regime,” August 22, 2017, <https://www.treasury.gov/press-center/press-releases/Pages/sm0148.aspx>

²⁰ “Treasury Targets Chinese and Russian Entities and Individuals Supporting the North Korean Regime,” August 22, 2017, <https://www.treasury.gov/press-center/press-releases/Pages/sm0148.aspx>

²¹ “Treasury Targets Chinese and Russian Entities and Individuals Supporting the North Korean Regime,” August 22, 2017, <https://www.treasury.gov/press-center/press-releases/Pages/sm0148.aspx>

²² <https://www.treasury.gov/press-center/press-releases/Pages/sm0099.aspx>

²³ <https://home.treasury.gov/news/press-releases/sm0257>

²⁴ “Treasury Imposes Sanctions on Supporters of North Korea’s Weapons of Mass Destruction Proliferation,” September 26, 2016, <https://www.treasury.gov/press-center/press-releases/Pages/jl5059.aspx>

each risk-based sanctions compliance program will vary depending on several factors — including the company’s size and sophistication, products and services, customers and counterparties, and geographic locations — each program that is implemented should be predicated on and incorporate at least five essential components of compliance: (1) management commitment; (2) risk assessment; (3) internal controls; (4) testing and auditing; and (5) training. Please refer to “[A Framework for OFAC Compliance Commitments](#)”²⁵ and the [BIS Export Management and Compliance Division](#) for more details.

The U.S. Department of State, OFAC, and the U.S. Coast Guard issued in May 2020 a global advisory to alert the maritime industry to deceptive shipping practices used to evade sanctions related to North Korea as well as Iran and Syria. The advisory outlines relevant UN obligations to prohibit the export of ballistic missiles and related technology to North Korea and includes a detailed set of best practices for private industry to consider adopting to mitigate exposure to sanctions risk. That advisory can be found here:

https://www.treasury.gov/resource-center/sanctions/Programs/Documents/05142020_global_advisory_v1.pdf.

Additionally, entities dealing in goods identified by the UN DPRK PoE should adopt due diligence practices that ensure North Korea and North Korean entities are not the final destination for their products. The specific goods that the PoE has identified as those that North Korea likely imports for its ballistic missile programs are as follows (more detailed examples may be found in the Annex):

- Multi-axle heavy vehicles, such as 8 or 9-axle forestry vehicles, used as Transporter Erector Launchers (TELs) for ballistic missiles
- Steels, aluminum, and specialty materials containing titanium.
- Filament winders and winding equipment.
- Carbon fiber for composite motor cases.
- Solid propellant, including aluminum powder and ammonium perchlorate, to the scale of 100 tons over the next 10 years.

Some examples of due diligence practices, derived from the “Know Your Customer” Guidance set forth in Supplement No. 3 to Part 732 of the EAR²⁶ are listed below:

- Thoroughly research any new or unfamiliar customers: Exporters should exercise increased due diligence when vetting new customers, such as reviewing the [Consolidated Screening List \(CSL\)](#), for parties sanctioned by the U.S. government. Exporters are advised that the following fact patterns should prompt additional scrutiny:
 - A new customer places an unexpected and/or high-value order for sophisticated equipment.
 - The customer is a reseller or distributor. In such cases, you should always inquire who the end user is.
 - The customer has no website or social media and is not listed in online business directories.
 - The customer’s address is similar to an entity listed on the CSL, or the address indicates the customer is located close to end users of concern, including co-located with an entity listed on BIS’s Entity List.
 - Your customer places an order and makes all shipping arrangements through a freight forwarding service. In such cases, request that the freight forwarder provide you a copy of the Electronic Export Information (EEI) filing to ensure the information is accurate.

More broadly, the U.S. Department of the Treasury has issued the [National Proliferation Financing Risk Assessment](#) to help the public and private sectors understand the proliferation financing methods used in the

²⁵ <https://home.treasury.gov/news/press-releases/sm680>

²⁶ <https://www.bis.doc.gov/index.php/compliance-a-training/export-management-a-compliance/compliance>

United States, the threat actors behind these methods and vulnerabilities exploited, and the risks that these activities pose to the U.S. financial system and national security. In doing so, the assessment enables U.S. government agencies to understand and minimize the risk associated with weapons proliferators seeking to exploit the U.S. financial system. The risk assessment also assists the private sector in detecting the exploitative tactics used by these threat actors, allowing financial institutions and other private sector stakeholders to better mitigate their illicit finance risk.

Additionally, the Financial Action Task Force (FATF), the international standard-setter for countering weapons of mass destruction proliferation financing, provides guidelines specific to North Korea and its weapons programs. Measures in the current FATF standards, like Recommendation 2, require countries to put in place effective national cooperation and, where appropriate, coordination mechanisms to combat the financing of proliferation of weapons of mass destruction. Additionally, Recommendation 7 requires countries to implement proliferation financing-related Targeted Financial Sanctions imposed by North Korea-related UNSCRs. The 2018 FATF Guidance on Counter Proliferation Finance identifies common deficiencies in counter proliferation finance regimes and recommends an effective supervisory model that includes at least 26 specific measures that address the control and monitoring process, remedial actions and sanctions, other general supervision, and promoting understanding of obligations.²⁷

Overview of U.S. Sanctions Related to North Korea's Proliferation Activities

Individuals and entities, including financial institutions, involved in the sale of certain sensitive items linked to North Korea could be subject to U.S. sanctions related to North Korea. A high-level overview of these authorities follows, but all individuals and entities reviewing this advisory are encouraged to ensure they understand fully all sanctions obligations and risks that pertain to their activities. Please note this section is current as of the date of this advisory — the most up-to-date information can be found at the websites listed in the footnotes below.

The U.S. government has the authority to impose sanctions on any person determined to, among other things:

- Knowingly, directly or indirectly, import, export, or reexport to, into, or from North Korea any goods, services, or technology controlled for export by the United States because of the use of such goods, services, or technology for weapons of mass destruction or delivery systems for such weapons and materially contributes to the use, development, production, possession, or acquisition by any person of a nuclear, radiological, chemical, or biological weapon or any device or system designed in whole or in part to deliver such a weapon;
- Knowingly, directly or indirectly, provide training, advice, or other services or assistance, or engage in significant financial transactions, relating to the manufacture, maintenance, or use of any such weapon, device, or system to be imported, exported, or reexported to, into, or from North Korea;
- Knowingly, directly or indirectly, sell, supply, or transfer to or from the Government of North Korea or any person acting for or on behalf of that Government, a significant amount of precious metal, graphite, raw or semi-finished metals or aluminum, steel, coal, or software, for use by or in industrial processes directly related to, among other things, weapons of mass destruction and delivery systems for such weapons or other proliferation activities;

²⁷ "FATF Guidance on Counter Proliferation Financing," February 2018, <http://www.fatf-gafi.org/media/fatf/documents/reports/Guidance-Countering-Proliferation-Financing.pdf>

- Knowingly, directly or indirectly, import, export or reexport to, into, or from North Korea any arms or related materiel or any defense article or defense service (as such terms are defined in section 22 U.S.C. § 2794);
- Knowingly, directly or indirectly, sell or transfer to North Korea any significant amounts of rocket, aviation, or jet fuel (except for use by a civilian passenger aircraft outside North Korea, exclusively for consumption during its flight to North Korea or its return flight);
- Operate in the construction, energy, financial services, fishing, information technology, manufacturing, medical, mining, textiles, or transportation industries in North Korea;
- Have engaged in at least one significant importation from or exportation to North Korea of any goods, services, or technology; and
- Have sold, supplied, transferred, or purchased, directly or indirectly, to or from North Korea or any person acting for or on behalf of the government of North Korea or the Workers' Party of Korea, metal, graphite, coal, or software, where any revenue or goods received may benefit the government of North Korea or the Workers' Party of Korea.

Additionally, pursuant to E.O. 13810, if the Secretary of the Treasury, in consultation with the Secretary of State, determines that a foreign financial institution has knowingly conducted or facilitated any significant transaction in connection with trade with North Korea, or knowingly conducted or facilitated a significant transaction on behalf of any person designated under an identified North Korea-related Executive Order, or under E.O. 13382 in connection with North Korea-related activity, that institution may, among other potential restrictions, lose the ability to maintain a correspondent account in the United States.²⁸

Other Relevant U.S. Authorities

Multiple North Korea-related entities are designated pursuant to E.O. 13382 (Blocking Property of Weapons of Mass Destruction Proliferators and Their Supporters). Commercial stakeholders should be aware that E.O. 13382 includes a provision allowing imposition of derivative designations on any person determined by the Secretary of the Treasury, in consultation with the Secretary of State, the Attorney General, and other relevant agencies, to have provided, or attempted to provide, financial, material, technological or other support for, or goods or services in support of, any person whose property and interests in property are blocked pursuant to E.O. 13382. E.O. 13382 also makes it possible to impose sanctions on any person determined by the Secretary of the Treasury, in consultation with the Secretary of State, the Attorney General, and other relevant agencies, to be owned or controlled by, or acting or purporting to act for or on behalf of, directly or indirectly, any person whose property and interests in property are blocked pursuant E.O. 13382.

Under the Iran, North Korea, and Syria Nonproliferation Act (INKSNA), 50 U.S.C. §1701 note, sanctions may be imposed against foreign persons (entities and individuals) that engage in transfers to and from North Korea of items controlled by the Missile Technology Control Regime (MTCR) or other nonproliferation regimes, as well as certain non-listed items that could materially contribute to missile or WMD programs. Penalties under INKSNA include restrictions on U.S. government procurement, U.S. government assistance, and the issuance of export licenses.

Section 73 of the Arms Export Control Act and Section 11B(b)(1) of the Export Administration Act of 1979, as amended, 50 U.S.C. app. 2401-2420, as carried out under E.O. 13222 of August 17, 2001, provide for

²⁸ These prohibitions apply to transactions by a U.S. person or within the United States, including those that pass through the U.S. financial system. For additional details on OFAC prohibitions related to North Korea, see <https://www.treasury.gov/resource-center/sanctions/Programs/pages/nkorea.aspx>. For prohibitions arising from Bank Secrecy Act authorities, such as the imposition of special measures based on the designation of North Korea as a jurisdiction of primary money laundering concern under section 311 of the USA PATRIOT Act, see www.fincen.gov.

mandatory sanctions (unless waived) against any foreign person determined to have knowingly exported, transferred, or otherwise engaged in trade after November 1990 of MTCR Annex items that contribute to MTCR Category I missiles in a non-MTCR country. Missile sanctions were imposed under these authorities in January 2018 against two North Korea entities, Chilsong Trading Corporation (North Korea) and Korea Kuryonggang Trading Corporation (North Korea), for transferring MTCR Category I items, including technology.

In addition to the license requirements for exports and reexports for items subject to the EAR (apart from EAR99 food and medicines) destined for North Korea, the Department of Commerce may place foreign persons on BIS's Entity List for support of North Korea's weapons of mass destruction, ballistic missile-program, conventional arms, or any other activity contrary to U.S. national security or foreign policy interests.

Consequences of Engaging in Prohibited and/or Sanctionable Conduct

OFAC investigates apparent violations of its sanctions regulations, and exercises enforcement authority as outlined in the Economic Sanctions Enforcement Guidelines, 31 C.F.R. Part 501, Appendix A. Persons who violate the North Korea Sanctions Regulations, 31 C.F.R. Part 510, may face civil monetary penalties of up to the applicable statutory maximum penalty, \$307,922²⁹ or twice the value of the underlying transaction, whichever is greater, may be referred for criminal prosecution, or both.

BIS investigates apparent violations of the EAR, such as the export and reexport of items subject to the EAR to North Korea without the required BIS licenses. BIS may take action against any person (individual or entity) regardless of nationality or location, in connection with a violation of the EAR. As set forth in the Export Control Reform Act of 2018, 50 U.S.C. §§ 4801-4852, , criminal penalties may include up to 20 years of imprisonment and up to \$1 million in fines per violation, or both. Administrative monetary penalties may currently reach up to \$307,000 per violation or twice the value of the underlying transaction, whichever is greater. In general, the administrative monetary penalty maximum is adjusted for inflation annually.

North Korea Sanctions Resources

For additional information on OFAC sanctions, please see the North Korea Sanctions Regulations, 31 C.F.R. Part 510. For questions or concerns related to OFAC sanctions, regulations and requirements, including disclosing a potential violation of U.S. sanctions regulations, please contact OFAC's Compliance Hotline at 1-800-540-6322 or OFAC_Feedback@treasury.gov. To submit a request to OFAC for a specific license, see <https://licensing.ofac.treas.gov/Apply/Introduction.aspx>.

For additional information on BIS sanctions, please see 15 C.F.R. 746.4, which describes the licensing requirements and licensing policy for items subject to the EAR that are destined for North Korea. For questions or concerns related to BIS sanctions, please contact BIS's Foreign Policy Division at 202-482-4252. In order to discuss, or disclose, a potential violation of sanctions administered by BIS, please send an electronic transmission to BIS_VSD_INTAKE@bis.doc.gov. To submit a request to BIS for a license, please see <https://www.bis.doc.gov/index.php/licensing/simplified-network-application-process-redesign-snap-r>.

²⁹ Effective as of April 9, 2020

Annex

1. Fibrous Material Production

-- Carbon, Kevlar, and Aramid fibers

- Spinning nozzles (alt. spinneret) with hole diameters of 0.05+/-0.002 mm, arranged individually or in a sequence of concentric circles

-- Chemicals for the production of fibers, such as Amine: 5,6-amino-2-(p-aminophenyl) benzimidazole, para-phenylenediamine, 2-chloro-para-phenylenediamine and Carboxylic acid halide: terephthaloyl dichloride

--Dimethyl acetamide

2. Heavy-Duty Truck Chassis

-- Hydro-pneumatic suspension cylinders

-- Main brake cylinders

-- Transmissions for vehicles larger than four axles

-- Production lines for vehicle chassis larger than four axles

-- Production lines for tires larger than 55 inches in diameter

3. Heat Resistant, Specialty Steels, Aluminums, etc

Common Name	Formulation of Material	Closest GOST Standard	Closest Chinese/European Standard	US Designation (AISI/ASTM/UNS)	Alternates
CrNi60WTi	C: <0.1% Mn: <0.5% Si: <0.8% P: <0.013% S: <0.013% Cr: 23.5-26.5% Ni: balance W: 13.0-16.0 Mo: <1.5% Ti: 0.3-0.7% Al: <0.5% Fe: <4.0%	CrNi60WTi (ЭИ868) per TU 14-3-571-2004; CrNi60WTi-Var (ЭИ868-Var) per TU 14-3-571-77; GOST 5632, E1868		Similar to ASTM 8163, Inconel 601, UNS N06601	XH60BT-ВД, HN60 VT-VD, KhN60 VT-VD; similar to XH60BT without small amount of copper. Inconel-X or Alloy X-750
CrNi77TiAI	Fe: <1% C: <0.07% Si: <0.6% Mn: <0.4% P: <0.015% S: <0.007% Cr: 19-22% Ni: 70.083-77.4% Ce: <0.02% Ti: 2.4-2.8%	KhN77TYU, XH77TЮ ЭИ437A, Bar, GOST 23705-79, E1437A	Germany DIN Alloy 2.4952, NiCr20TiA I; Japan: JIS NCF80A	UNS N07080, NIMONIC 80A, Inconel 751	

Common Name	Formulation of Material	Closest GOST Standard	Closest Chinese/ European Standard	US Designation (AISI/ASTM/ UNS)	Alternates
	Al: 0.6-1% Ba: <0.003% Pb: <0.001 %				
CrNi77TiA IBo	Fe: <1% C: <0.07% Si: <0. 6% Mn: <0.4% P: <0.015 % S: <0.0 07 % Cr: 19 -22% Ni: 70.076-77.4% Ce: <0.02% Ti: 2.4-2.8% Al: 0.6-1% Ba: <0.01% Pb: <0.001%	KhN77TYuR, XH77TIOP ЭИ437Б, XH77TIOP-ВД ЭИ437Б - ВД, Sheet, GOST 24982-81 Bar, GOST 23705-79, E1437B	Germany DIN Alloy 2.4952, NiCr20TiA I; Japan: JIS NCF80A	UNS N07080, NIMONIC 80A, Inconel 751	
CrNi77TiA IBo	Fe: <1% C: <0.07% Si: <0. 6% Mn: <0.4% P: <0.015 % S: <0.0 07 % Cr: 19 -22% Ni: 70.076-77.4% Ce: <0.02% Ti: 2.4-2.8% Al: 0.6-1% Ba: <0.01% Pb: <0.001%	KhN77TYuRU, XH77TIOPY ЭИ437БУ, XH77TIOPY-ВД ЭИ437БУ-ВД XH77TIOPY-ПД ЭИ437БУ- ПД, Bar, GOST 23705-79, E1437BY	Germany DIN Alloy 2.4952, NiCr20TiA I; Japan: JIS NCF80A	UNS N07080, NIMONIC 80A, Inconel 751	

Common Name	Formulation of Material	Closest GOST Standard	Closest Chinese/European Standard	US Designation (AISI/ASTM/UNS)	Alternates
CrNi78Ti Foil (Strips)	C: <0.12% Mn: <0.7% Si: <0.8% P: <0.015% S: <0.012% Cr: 19-22% Ni: 70.003-80.85% Ti: 0.15-0.35% Fe: <6.0%	KhN78T (XH78T) (ЭИ435), EI435	Germany: 2.4951 NiCr20Ti, Nicrofer® 7520; China: GB GH3030	UNS N06075; Haynes 75 Alloy; Nimonic 75	XH38BT, 12X25H16Г7AP, 20X23H18
Cr16Ni25Mo6	C: <0.12% Si: <0.90% Mn: 0.50-2.50% P: <0.035% S: <0.030% Cr: 14.0-18.0% Ni: 22.0-27.0% Mo: 5.0-7.0% Cu: <0.50% N: 0.10%	GB/T 983 Cr16Ni25Mo6			
Cr21Ni5Ti	C: <0.08% Si: <0.8% Mn: <0.8% P: <0.035% S: <0.025% Cr: 20- 21% Ni : 4.8 - 5.8 % Ti: 0.40 - 0.80%	OKh21NSTi GOST 5632-61	Cr21Ni5Ti German: DIN 1.4462 EN10088-2; BS 318S13	2205 DSS (UNS S32205); UNS S31803	AISI 321; Can be used in place of 1Cr18Ni9Ti (GB/T 3090). Ref 2/00/6421-01. Gost 19277, 0Kh18N10T, EI 914 similar.
Cr21Ni78Ti	Fe: <6% C: <0.12% Si: <0.8% Mn: <0.7% P: <0.015 % S: <0.012% Cr: 19-2 2% Ni: 70.003-80.85% Ti: 0.15-0.35%	KhN78T, XH78T ЭИ435, Sheet, GOST 24982-81, Forging, GOST 25054-8 1, EI435	GB GH3030, Germany: W. Nr. 2.4951 & 2.4630, NiCr20Ti	UNS N06025 UNS N06075 Nimonic 75	

Common Name	Formulation of Material	Closest GOST Standard	Closest Chinese/ European Standard	US Designation (AISI/ASTM/ UNS)	Alternates
1Cr18Ni9Ti		08KH18N10T 08X18H19T	1Cr18Ni9Ti 0Cr18Ni10 Ti 1Cr18Ni11Ti	321 532100	Can be used in place of 0Cr21Ni5Ti
2Cr13		20X13/30X13	2Cr13	UNS S41000 ASTM A276A/276M, 410 ss	
4Cr13		40KH13 40X13 4X13	4Cr13, 40Cr13, GB/T 4237	UNS 420/422 (542000)	Can substitute 30X13 or 30Cr13
04Cr19Ni11Mo3	C: <0.060% Mn: 1-2% Si: <0.6% S: <0.018% P: <0.025% Cr: 18-20% Ni: 10 -12% Mo: 2-3%	04Cr19Ni11Mo3; Sandvik 12/19/3.LSi, SV04H19N11M3;	England: WUTMARC (company), Revicor 316L; German: 1.4430	AWS (ER): 316L	06Cr19Ni11Mo3
07Cr16Ni6	C: 0.05 -0.09% Mn: <0.8% Si: <0.8% P: <0.035% S: <0.02% Cr: 15.5 - 1Z .5% Ni: 5-8%	07X16H6, X16H6 E1288, 07KH16N6, Forging GOST 25054- 81, ЭИ288	Germany: 1.4310 Japan: JIS SUS301	301, 301L, 301LN UNS 530100, ASTM A959 (2004)	UNS 30400, 304 (Better availability, lower cost; 316 (Higher corrosion resistance needed)

Common Name	Formulation of Material	Closest GOST Standard	Closest Chinese/ European Standard	US Designation (AISI/ASTM/ UNS)	Alternates
08Cr18Ni10 T	C: <0.08% Si: <0.8% Mn: <2.0% P: <0.035% S: <0.02% Cr: 17 -19% Ni: 9 -11% Cu: <0.30% Ti: 5xC 0.7%	08Kh18N10 T, 08X18H10T, OX18 H10T EI9 1 4, GOST 5632-72, ЭИ914	08Cr18Ni10Ti; 0Cr18Ni11Ti1 Cr18Ni9Ti 0Cr18Ni10Ti Germany: DIN 1.4541;	AISI 321; UNS 532100;	12Cr18Ni9Ti; X19CrNiTi1 8.9;
08Cr19Ni9 Ti	C: <0.07% Mn: <2.0% Si: <1.0% P: <0.035% S: <0.030% Cr: 18 - 20.00% Ni: 8-11% Ti:	08X19H9T, 08Cr19Ni9Ti	German: 1.4301, 1.4307, 1.4948; Japan: JIS SUS304, SUS 304 L	530400, 304, AISI304; 530403, 304L; 530409, 304H;	301L, 316, 253MA
08Cr22Ni6 Ti	C: <0.08% Si: <0.8% Mn: <0.8% P: <0.035% S: <0.025% Cr: 21 - 23% Ni: 5.3 - 6.3% Mo: <0.30% W: <0.20% Ti: 5xC 0.65%	08Kh22N6Ti, 08X22H6T GOST 5632-72; Forging GOST 25054-81	08Cr22Ni6Ti	Similar: ASTM 532304; Grade 2304 Ti- DSS	
09Cr16Ni4 Nb	C: 0.08-0.12% Mn: <0.5% Si: <0.6% P: <0.03 % S: <0.015% Cr: 15 - 16.5% Ni: 4-4.5% Nb: 0.05-0.15% Cu: <0.3% Ti: <0.2%	09KH16N4B, 09X16H4b EI56, GOST 977 Bar GOST 5949 -75, Forging GOST 25054-81, ЭИ56	09Cr1 6Ni4Nb; German: 1.4542; 1.4548	630 (17-4 PH), UNSS17400; ASTM A 693 Plate, Sheet and Strip ;	09X16H4BL (cast), GOST 977; 09X16H4БД (cast), GOST 977; 416 (Lower cost but lower corrosion resistance); 431 (higher toughness than 630. Better availability in some sizes), 2205

Common Name	Formulation of Material	Closest GOST Standard	Closest Chinese/European Standard	US Designation (AISI/ASTM/UNS)	Alternates
					(Much better corrosion resistance than 630, with a lower strength (but not as low as 316).
10Cr18Ni9Ti; 12Cr18Ni9Ti	C: <0.12% Mn: <2% Si: <0.8% S: <0.02% P: <0.035% Cr: 17-19% Ni : 8-9 . 5% Cu: <0.3% Ti: 5C-0.8% Fe: balance	12Kh18N9T; 12X18 H9T; X18H9Ti;	12Cr18Ni9Ti; GB/T 3280 (1992), 0Cr18Ni11Nb; Germany: X10CrNiTi18-9; JIS: SUS321, SU321TK; BS: 321551	UNS S32100 321 UNS S32109 321H	12X18H10T; UNS S34700, AISI 347, ASTM A347 SAE J405
11Cr11Ni2W2MoV	Fe: 34.655-47.55% C: <0.1% Si: <0. 6% Mn: <1.5% P: <0.02% S: <0.02% Cr: 19 - 22% Ni : 25 - 30% M o: 2.8-3.5% W: 4.8-6% N: 0.15 - 0.3% Nb: 0.7-1.3% B: <0.005%	KhN28VMAB, X21H2885M3БAP GOST 24982-81, EI126 GOST 5632 (1972), ЭИ126			

Common Name	Formulation of Material	Closest GOST Standard	Closest Chinese/ European Standard	US Designation (AISI/ASTM/ UNS)	Alternates
12Cr21Ni5 Ti	C: 0.09-0.14% Mn: <0.8% Si: <0.8% P: <0.035% S: <0.035% Cr: 20-22% Ni: 4.8-5.8% Ti: 0.25-0.5% Al: <0.8%	12KH21N5T; 1 2X21H5T; 1X21H5T (ЭИ811) EI811	Czechia, CSN 17254		
12Cr25Ni16Mn7Nb	C: <0.12% Si: <1.0% Mn: 5.0-7.0% P: <0.035% S: <0.020% Cr: 23.0-26.0% Ni: 15.0-18.0% Mo: <0.030% Al: <0.50% Ti: <0.20% N: 0.30-0.45% B: <0.010%	12KH25Ni16G7AR, 12X25H16Г7AP, X25H16Г7AP EI835 (ЭИ835), GH1139 (GH139)	12Cr25Ni16Mn7Nb, GB/T 14992-2005	SS 309, ASTM A167-99	
18CrMo4	C: 0.15 - 0.21% Mn: 0.60 - 0.90% Si: <0.40% P: <0.035% S: <0.035% Cr: 0.90-1.20% Mo: 0.15 -0.25% Al, Ti, V, Nb may be added.	20KHM	German: 1.7243, 18CrMo4; UK: EN10250-3 (2005), 708M20; Japan: JIS G4105, SCM420 and SCM418; Czechia CSN 15124	ASTM A29 4118	

Common Name	Formulation of Material	Closest GOST Standard	Closest Chinese/ European Standard	US Designation (AISI/ASTM/ UNS)	Alternates
19Cr18Ni9 Ti		12Kh18N9T; 12X18H9T; X18H9Ti	German DIN 1.4541, 1.4878 X19CrNiTi 18.9; Japan: SUS321, SU321TK; BS:321551	AISI 321; UNS 532100; AISI 321H; UNS 532109	Similar to: 12Cr18Ni9Ti; 1Cr18Ni9Ti; 17Cr18Ni9; 12X18H10T; AISI 347
KhN35VT Yu	Fe: 37.545-47.4% C: <0.08% Mn: <0.60% Si: <0.60% S: <0.02% Phosphorus: <0.035% Cr: 14-16% Ni: 33-37% W: 2.5-3.5% Ti: 2.4-3.2% Al: 0.7-1.4% B: <0.02%	HN35VTYU-VD, EI787, GOST 5632, XH35BTЮД		No equivalent material	
KhN60VT	C: <0.10% Mn: <0.50% Si: <0.80% S: <0.013% P: <0.013% Cr: 23.5-26.5% Ni: 50.874-63.2% W: 13-16% Ti: 0.3-0.7% Al: <0.5%	HN60VT, KhN60VT EI868 (ЭИ868), GOST 5632, XH60BT		ASTM B163, Inconel 601, UNS N06601	

Common Name	Formulation of Material	Closest GOST Standard	Closest Chinese/ European Standard	US Designation (AISI/ASTM/ UNS)	Alternates
AlMg6	Al: 90.25-95.5% Mg: 4.5-7% Mn: 0-0.6% Fe: 0-0.5% Cr: 0-0.5% Pb: 0-0.05% Ti: 0-0.2% Zn: 0-0.2% Cu: 0-0.1% Ni: 0-0.05% Sn : 0-0.05%	GOST AL23; TS 410 Grade AlMg6		ISO AlMg6; 5000 series Al	
Brazing Foil: PM - 17	Mn: 17% Ni: 14% Sn : 6% Cu: remainder	n M-17; CuMnNiSn 17-14-6			
Brazing Foil: Mn40					

Common Name	Formulation of Material	Closest GOST Standard	Closest Chinese/ European Standard	US Designation (AISI/ASTM/ UNS)	Alternates
Brazing Foil: Mn70					

4. Bearings

- 35-205 ю (any number), Yu (any number)
- 36-670703 ю (any number), Yu (any number)
- 4-6023E
- 46-206 ю (any number, Yu (any number)
- 5-23
- 5-24
- 5-25
- 5-26
- 5-1000094
- 5-1000095
- 5-1000096
- 5-1000807
- 5-2000083
- 5-406040
- 5-516053
- 5-640065
- 85-205 ю (any number}, Yu (any number }
- 3056207 ю (any number), Yu (any number)
- 392 ю (any number), Yu (any number)
- 6024902 ю (any number}, Yu (any number)
- 1008 ю (any number}, Yu (any number) . GOST 3706 -77
- 36-26YuT, GOST R 52545.2-2012; TU 3739-0 P-79, TU 37 .006 .003-75, TU 37.006.055, TU 37.006.110-81 or TU 4091-72; TU 3706.77; 1008YU
- 36-206 ю (any number), Yu (any number }
- 36-670 ю (any number), Yu (any number)
- 36-703 ю (any number), Yu (any number)
- 45-208 д (any number), D (any number }
- 46-208 ю (any number), Yu (any number }
- 46-210 Yu 2/ 6210, GOST 46-210Yu2, 46-210ю 2п, 46-210Yu2P
- 46-212 ю (any number}, Yu (any number)

- 46-214Yu1/ 6214, GOST 46-214Y1, GOST 46-214Yu1P, 46-214Ю1П
- 85-207 ю (any number), Yu (any number)

5. *Equipment*

- Hot isostatic press
- Cold isostatic press
- Betatron capable of measuring greater than 1m depth
- Horizontal or vertical continuous kneader/mixer with heating and extrusion capability
- Filament winding machines
- Tape wrapping machines

6. *Precursor Chemicals*

- Unsymmetrical Dimethyl Hydrazine (UDMH)
- N2O4
- Sodium perchlorate
- Hydrochloric Acid (100%)

7. *Electronics*

- 8V-6K relay
- DP-8 relay
- DP-12 relay
- 8Eh18 relay
- RES-8 relay
- RES-34 relay
- RES-48A relay
- RES-80 relay
- TMS320C6713 digital signal processor chip
- AD574SD space qualified 12-bit analog-to-digital converter chip
- DAC4815 digital-to-analog converter chip
- RDCI 740 resolver-to-digital converter chip

8. *Guidance, Navigation, and Control*

- NV08C-CSM receiver
- QA-2000 accelerometers
- Fiber optic gyroscopes
- Ring-laser gyroscopes
- Micro-electro-mechanical systems (MEMS) gyroscopes capable of withstanding 10g or more
- Inertial Measurement Units (IMUs) capable of withstanding 10g or more