DEFENCE TURKEY

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Turkey Progresses Composite Propellant Technologies

The signing ceremony for the Rocket Fuel and Component Technologies of the Technology Acquisition Road Map Projects as well as the Technology Acquisition Requirement (TKY) Projects implemented under the framework of the R&D and Technology Road Map of the Undersecretariat of Defence Industries (SSM), took place with the participation of SSM officials, the principal contracting firm Roketsan and officials of the sub-contractors in the project, TÜBİTAK MAM, METU and the Femsan company. A total of seven projects, four within the framework of the Rocket Fuel and Component Technologies under the Technology Acquisition Road Map and three projects within the coverage of the TKY were signed.

In the ceremony realised at the SSM, the following projects were signed with the principal contractor Roketsan: The ammonium dinitramite (ADN) Development Project; the Azido Polymer (AZP) Development Project; the Synthetic Jet Fuel (JP-10) Development (EKZO) Project; the Contactless Plug Programming Unit Development Project within the Rocket Fuel and Component Technologies under the coverage of Technology Acquisition Road Map Projects. On the other hand, the projects implemented by the SSM's Weapon Systems Department where Roketsan is the principal contractor were signed under the coverage of the Technology Acquisition Requirement (TKY) Projects. The projects to be co-ordinated by the Advanced Materials and Energy Group of the R&D and Technology Management Department are the Isophorone Diisocyanate Material Laboratory Scale Synthesis and Characterisation Studies, the Antioxidant Material Content Determination Studies and the Brushless DC Motor Development Project.

Mr. Selçuk Yaşar, General Manager of Roketsan

Mr. Murad Bayar, Undersecretary for Defence Industries

Speaking at the signing ceremony, the Defence Industries Undersecretary Bayar stated that the said projects were extremely important to the defence industry and indicated that private and public sector collaboration was crucial to the industry. Bayar said the following, "The strength of Turkey will rise from this association. This formulation is very important. As a result of this we are expecting a strong chemical reaction."

Roketsan's General Manager Selçuk Yaşar, on the other hand, said that since its founding Roketsan had undergone major changes and made the assessment that, "Today, this signing ceremony is a leap in our defence industry with projects that will gain a significant depth that started 25 years ago with our adventures in fuel." Stating that they had seen a large increase in sales during the last 5 years, Yaşar mentioned that 30 percent of their sales were generated from exports. Adding that the defence industry exported products in which the value added was high, Yaşar went on to say that, "By continuously increasing our exports we aim to reach even a higher plateau. Today with these projects, we believe we have further increased our capabilities." Yaşar also indicated that Roketsan had undertaken large investments in fuel chemicals and that they had come a long way in this regard and that the projects to be signed would complement these achievements.

Technology Acquisition Road Map (TKY) Projects

New Generation Composite Rocket Fuel Components – Ammonium Dinitramite (ADN) Development Project

Within the coverage of the TKY Projects, the first project that is planned to be developed is the New Generation Composite Rocket Fuel Components: the Ammonium Dinitramite (ADN) Development Contract. With this project, to be implemented by Roketsan as the main contractor and TÜBİTAK MAM as the sub-contractor, the aim is to realise technology development activities towards the synthesis, characterisation and verification of the critical oxidising fuel component ammonium dinitramite (ADN) that

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is difficult to obtain from overseas, that is a new generation less smoky/smokeless, insensitive composite fuel and which provides 10 percent more propulsion compared to other oxidisers. Following the signing of the contract, the project is foreseen to be completed in 33 months.

New Generation Composite Rocket Fuel Components – Azido Polymer (AZP) Development Project

With this project that is planned to be completed in 35 months with Roketsan as the principal contractor and TÜBİTAK MAM as the sub-contractor, the aim is the realisation of technology development activities towards the synthesis and verification of the critical energy binding fuel component Azido Polymer (AZP) that is difficult to acquire from overseas, that is a new generation less smoky/smokeless, insensitive and that is required in composite solid fuel formulations. A high energy polymeric binder, azido polymer, in particular, is capable of providing an increase in ballistic performance.

Synthetic Jet Fuel Development (EKZO) Project

The aim of this project, planned to be completed in 33 months with Roketsan as the main contractor and the Department of Chemistry of METU as the sub-contractor, is the realisation of technology development activities towards the synthesis, characterisation and verification of synthetic jet fuel through domestic means that is subject to export restrictions. Within the coverage of this project, work through laboratory scale synthesis and scale-up studies that will provide the characteristics defined under the military standard number MIL-DTL-87107E of the main component of synthetic fuel, the material exo-tetrahydrodicyclopentadiene, research in other materials in sample products defined in MIL-DTL-87107E as well as work in creating the infrastructure for producing a minimum 1.5 tons/year capacity in jet fuel is planned.

Contactless Plug Programming Unit Development Project

Under this project to be carried out by Roketsan as the principal contractor, the aim is to develop a Contactless Plug Programming Unit (TTPÜ) for the contactless programming of electronic and electro-mechanic plugs that take place in ammunition, rocket and missile systems that use programmable plug systems. In addition, within the project's coverage the TTPÜ will consist of the External Plug Adjustment Unit (HTAÜ) and the Plug Top Hardware (TÜD) Unit as well as the use of plugs that require electronic adjustment.

Technology Acquisition Requirement Projects

Isophorone Diisocyanate Material Laboratory Scale Synthesis and Characterisation Work

To be implemented by Roketsan as the principal contractor and the Chemistry Department of METU as the sub-contractor and which is planned to be developed within a 12 month period, this project has the objective of carrying out a laboratory scale synthesis and characterisation work for the material Isophorone Diisocyanate used as a curative in flight engine fuel and primer formulations of OMTAS (Medium Range Anti-Tank Missile. The project covers the identification of the synthesis procedure, identifying and acquiring the necessary raw materials and laboratory scale synthesis equipment, the synthesis of small -scale samples and obtaining a 10 gr./lot product amount.

Antioxidant Material Contents Identification Work

With this project the aim is to carry out work on the content identification and equivalent sample preparation of the antioxidant material (A03105) that is acquired from overseas and which is used in the flight engine composite solid rocket fuel and primer formulations of OMTAS. Expected to be completed in 12 months, this project again has the Chemistry Department of METU as the sub-contractor and Roketsan as the main contractor.

Wireless DC Motor Development Project

To be carried out under Roketsan as the main contractor and the Femsan Elektrik Motorları Sanayi as the sub-contractor, this project objective is the design, development, testing and production of the coreless type Brushless DC engines that possesses high volumetric efficiency, that will replace the conventional DC Servo motors and that will be used mainly for anti-tank and air-defence systems and guided missile propulsion control systems. Additionally, with the design capability to be gained from the project, the domestic development of brushless Servo motors in different sized that may be needed in various platforms and systems in the following years is being evaluated. Planned to be completed in 18 months, according to the project's calendar the sub-contracting firm will deliver 3 different types of 16 electric motors to Roketsan.