

119<sup>TH</sup> CONGRESS  
2<sup>D</sup> SESSION

# S. 4766

To require the Secretary of Defense to establish a pilot program to evaluate the safety, quality, and qualification pathways of printable energetic feedstocks for controlled additive manufacturing applications.

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IN THE SENATE OF THE UNITED STATES

JUNE 11, 2026

Mr. CORNYN introduced the following bill; which was read twice and referred to the Committee on Armed Services

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## A BILL

To require the Secretary of Defense to establish a pilot program to evaluate the safety, quality, and qualification pathways of printable energetic feedstocks for controlled additive manufacturing applications.

1       *Be it enacted by the Senate and House of Representa-*  
2       *tives of the United States of America in Congress assembled,*

3       **SECTION 1. PILOT PROGRAM ON SAFETY AND QUALIFICA-**  
4                               **TION OF PRINTABLE ENERGETIC FEED-**  
5                               **STOCKS FOR ADDITIVE MANUFACTURING.**

6       (a) ESTABLISHMENT.—The Secretary of Defense  
7 shall establish a pilot program, to be carried out by the  
8 Under Secretary of Defense for Research and Engineer-

1 ing, in coordination with the Capability Program Execu-  
2 tive, Ammunition and Energetics (or successor organiza-  
3 tion) and appropriate service acquisition executives, to  
4 evaluate the safety, quality, and qualification pathways of  
5 printable energetic feedstocks for controlled additive man-  
6 ufacturing applications.

7 (b) PURPOSE.—The purposes of the pilot program  
8 are—

9 (1) to determine whether the use of printable  
10 energetic feedstocks can improve handling safety,  
11 process stability, lot-to-lot consistency, and supply  
12 chain resilience relative to traditional energetics  
13 manufacturing and handling methods;

14 (2) to analyze the effect of printable energetic  
15 feedstocks with regards to logistics, including  
16 throughput, waste, defect rate, and constituent ma-  
17 terial availability versus state-of-the-art legacy proc-  
18 esses;

19 (3) to develop and validate new test and evalua-  
20 tion methods, if necessary, including metrology and  
21 digital quality assurance, if existing qualification  
22 pathways are insufficient to assess printable ener-  
23 getic feedstocks for Department of Defense use;

24 (4) to assess applicability of printable energetic  
25 feedstocks to existing or planned munition and

1 energetics modernization efforts, consistent with ex-  
2 plosive safety, security, and environmental require-  
3 ments that provide advantage in performance or lo-  
4 gistics; and

5 (5) to identify barriers to adoption, including  
6 infrastructure, standards, certification, and work-  
7 force requirements.

8 (c) ACTIVITIES.—Activities under the pilot program  
9 may include—

10 (1) identification, assessment, and characteriza-  
11 tion of representative printable energetic feedstocks  
12 and their performance consistency under controlled  
13 conditions;

14 (2) development of qualification criteria and  
15 data packages to inform safety releases, waivers, or  
16 certifications as appropriate;

17 (3) limited demonstrations at Government fa-  
18 cilities or contractor facilities that meet all applica-  
19 ble explosive safety and security requirements;

20 (4) development of nonproprietary standards,  
21 metrology approaches, and digital thread quality  
22 controls for printable energetic feedstocks; and

23 (5) analysis of operational effects via  
24 wargaming or mission or campaign modeling and ex-  
25 perimental performance data.

1 (d) COMPARATIVE SAFETY ASSESSMENT RE-  
2 QUIRED.—As a core element of the pilot program, the Sec-  
3 retary shall conduct a comparative assessment of the safe-  
4 ty of the use of printable energetic feedstocks relative to  
5 traditional energetics manufacturing and handling, includ-  
6 ing, at a minimum—

7 (1) hazards and risks associated with storage,  
8 transport, handling, and processing;

9 (2) sensitivity and response to credible stimuli  
10 (including thermal and mechanical stimuli) using ap-  
11 propriate test standards;

12 (3) process safety considerations, including po-  
13 tential failure modes and mitigations for controlled  
14 additive manufacturing workflows;

15 (4) accident and incident risk modeling (includ-  
16 ing qualitative and quantitative risk assessment  
17 where feasible); and

18 (5) recommended safety controls, facility re-  
19 quirements, and operational constraints for any fu-  
20 ture operational use.

21 (e) SAFETY AND SECURITY REQUIREMENTS.—The  
22 Secretary shall ensure that activities under the pilot pro-  
23 gram—

1           (1) are conducted only at facilities compliant  
2 with applicable explosive safety siting, storage, han-  
3 dling, and operating requirements;

4           (2) incorporate counter-diversion safeguards,  
5 inventory accountability, and chain-of-custody con-  
6 trols; and

7           (3) do not authorize dissemination of restricted  
8 manufacturing parameters outside approved Govern-  
9 ment and cleared-industry channels.

10       (f) REPORTING.—Not later than 180 days after initi-  
11 ation of the pilot program, and annually thereafter for the  
12 duration of the pilot program, the Secretary shall submit  
13 to the congressional defense committees a report that in-  
14 cludes—

15           (1) pilot objectives, participants, test locations,  
16 and safety governance structure;

17           (2) test methodologies, standards used, and key  
18 safety and quality metrics;

19           (3) results of activities conducted under sub-  
20 section (c), including identification, assessment, and  
21 characterization of representative printable energetic  
22 feedstocks, demonstrations, qualification criteria,  
23 data packages, and standards development;

1           (4) results of the comparative safety assessment  
2           required under subsection (d), including identified  
3           hazards, mitigations, and residual risk;

4           (5) an assessment of cost, schedule, and  
5           scalability relative to traditional energetics manufac-  
6           turing and handling;

7           (6) recommended qualification and certification  
8           pathways, including any standards gaps; and

9           (7) any recommended legislative, regulatory, or  
10          resourcing actions required to enable safe adoption.

11          (g) TERMINATION.—The pilot program shall termi-  
12          nate before the date that is two years after the date of  
13          the enactment of this Act.

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