

119TH CONGRESS
2D 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.

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

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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