Supporting Information for

A one-dimensional dual emissive hybrid perovskite with flexibly tunable white-light emission

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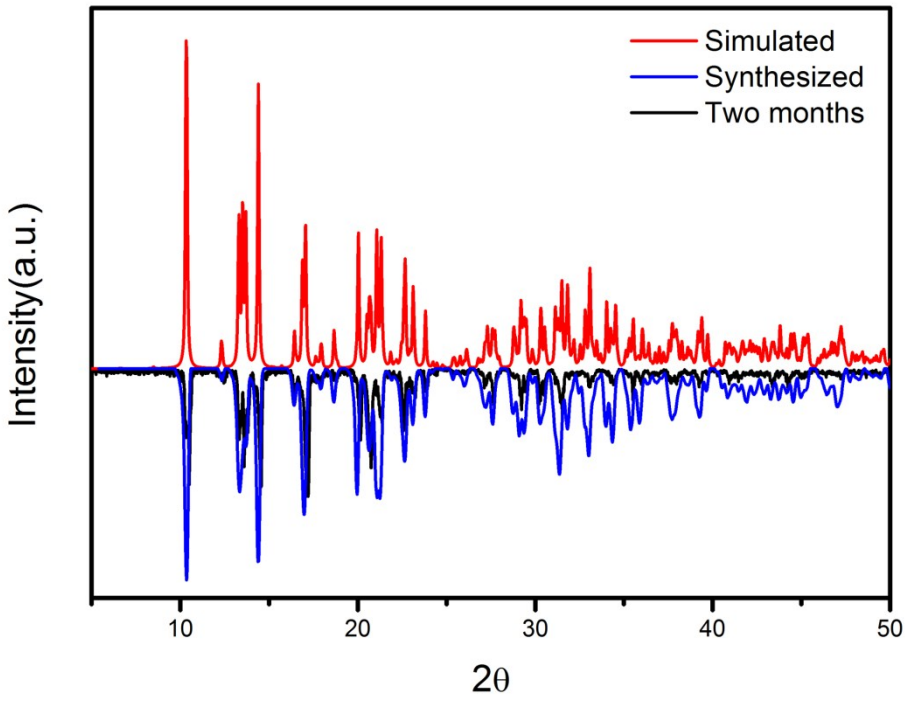

Figure S1. Powder X-ray diffraction patterns of original synthesized **NAPC**.

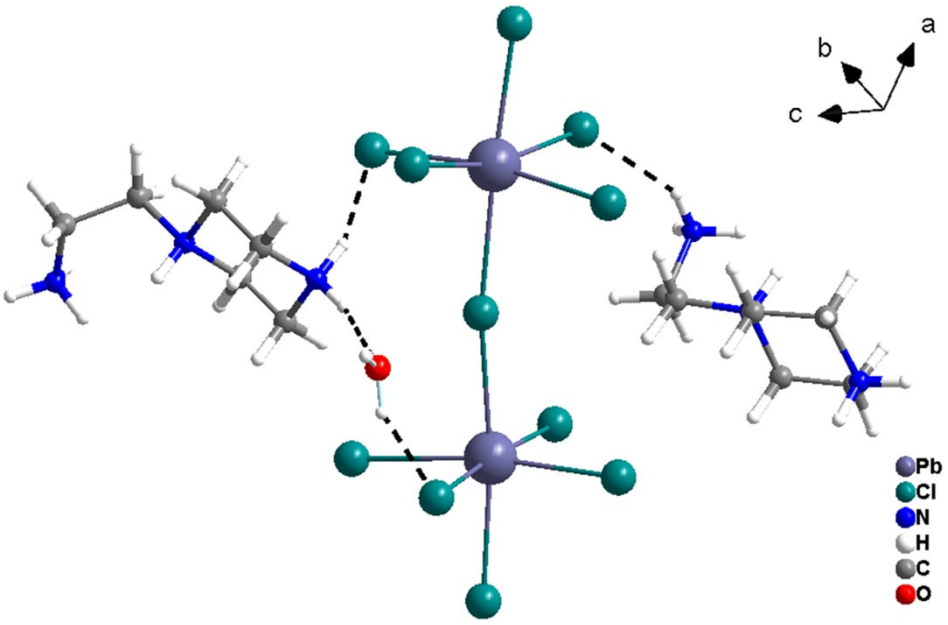

Figure S2. Hydrogen bonds in the compound **NAPC**, and the asymmetric unit consists of **NAPC** (In order to clearly express the hydrogen bond, some hydrogen atoms are removed.).

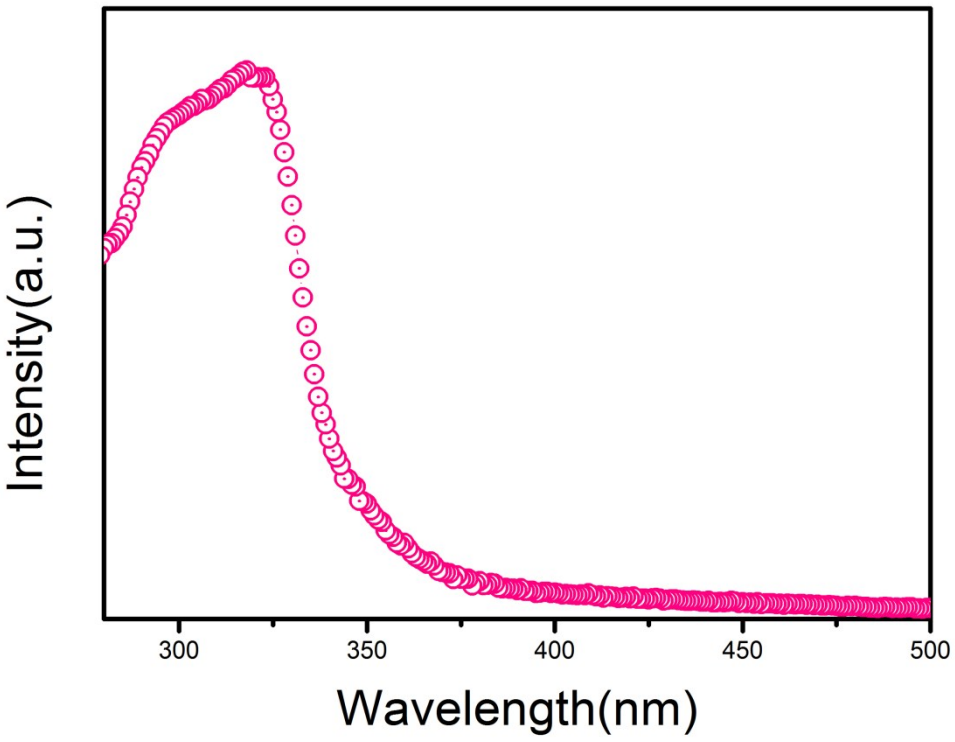

Figure S3. UV-vis absorption spectra of **NAPC**.

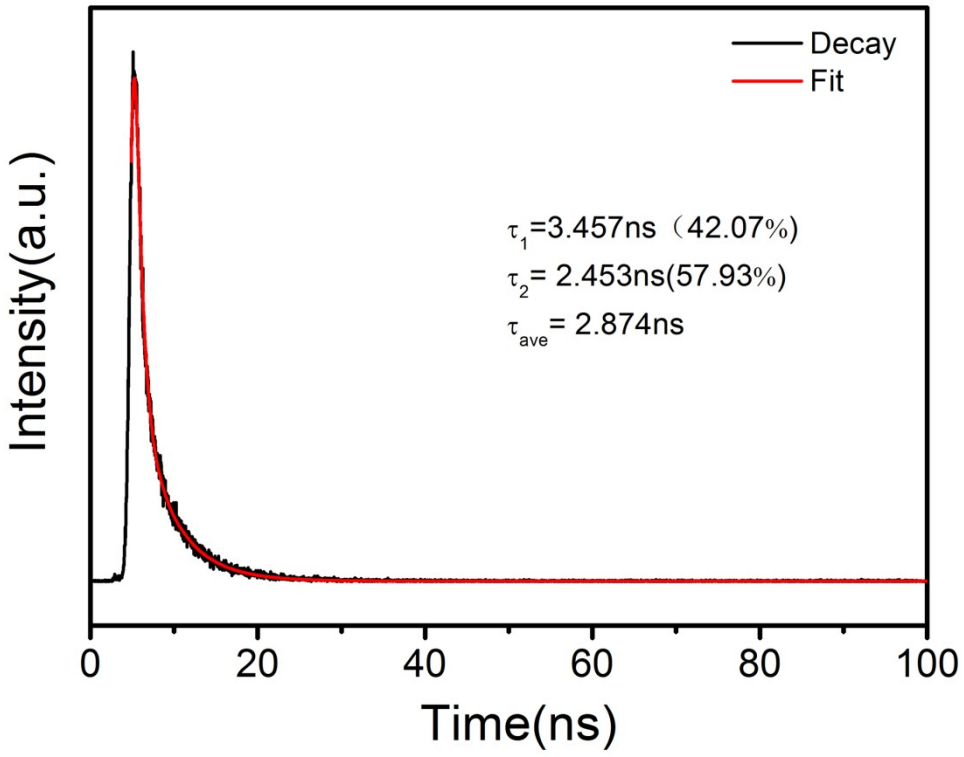

Figure S4. Photoluminescence decay and fitting curves of (N-AEP)Cl_3 at 402 nm.

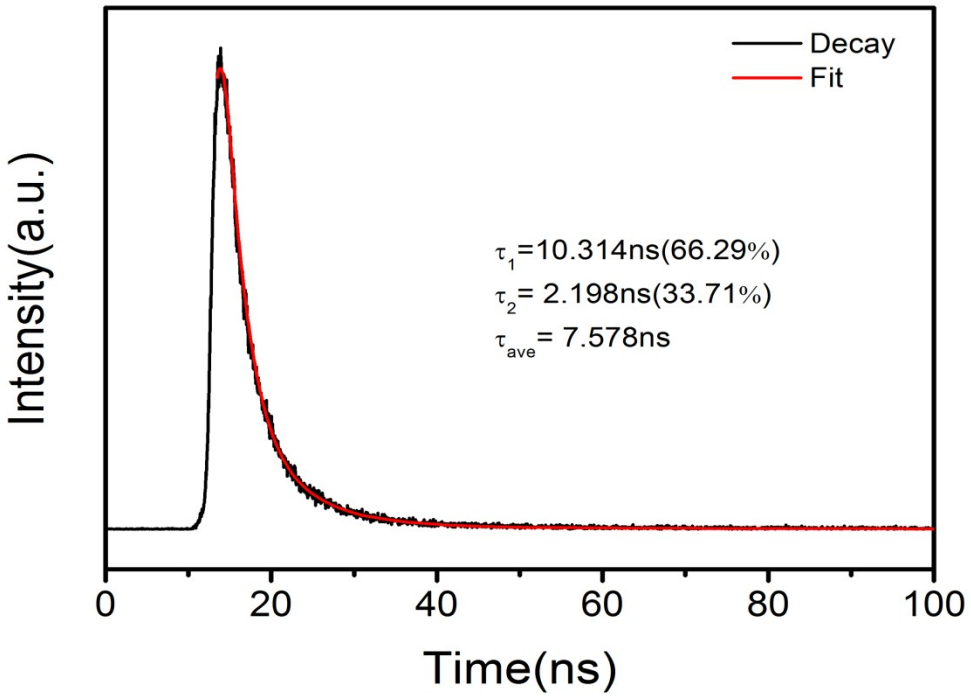

Figure S5. Photoluminescence decay and fitting curves of **NAPC** at 396 nm.

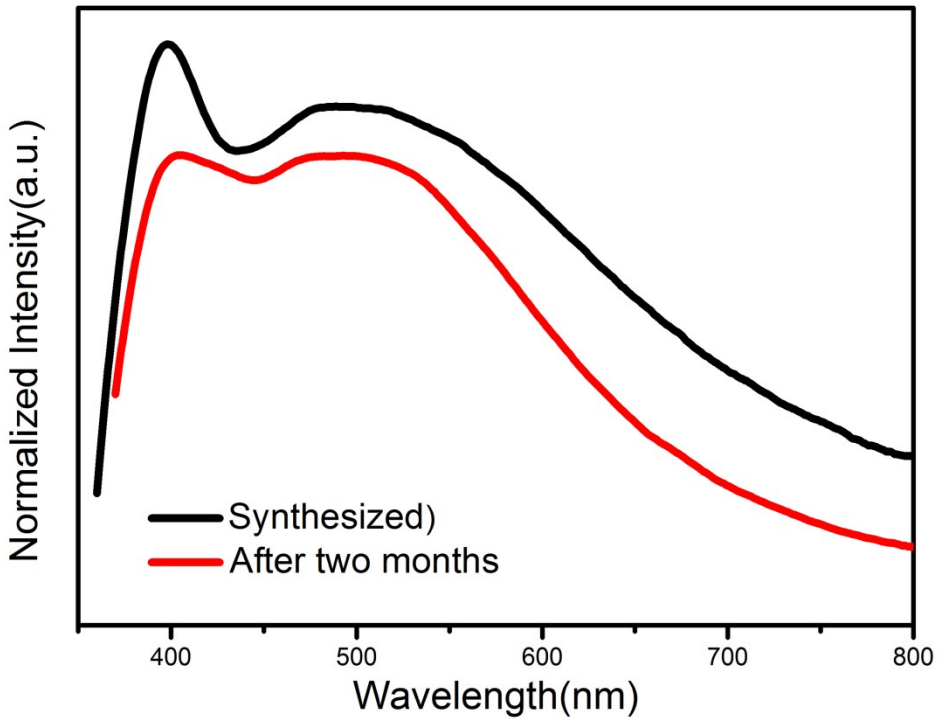

Figure S6. Emission spectra of the crystal of compound **NAPC** original synthesized and that exposed to ambient condition for two months.

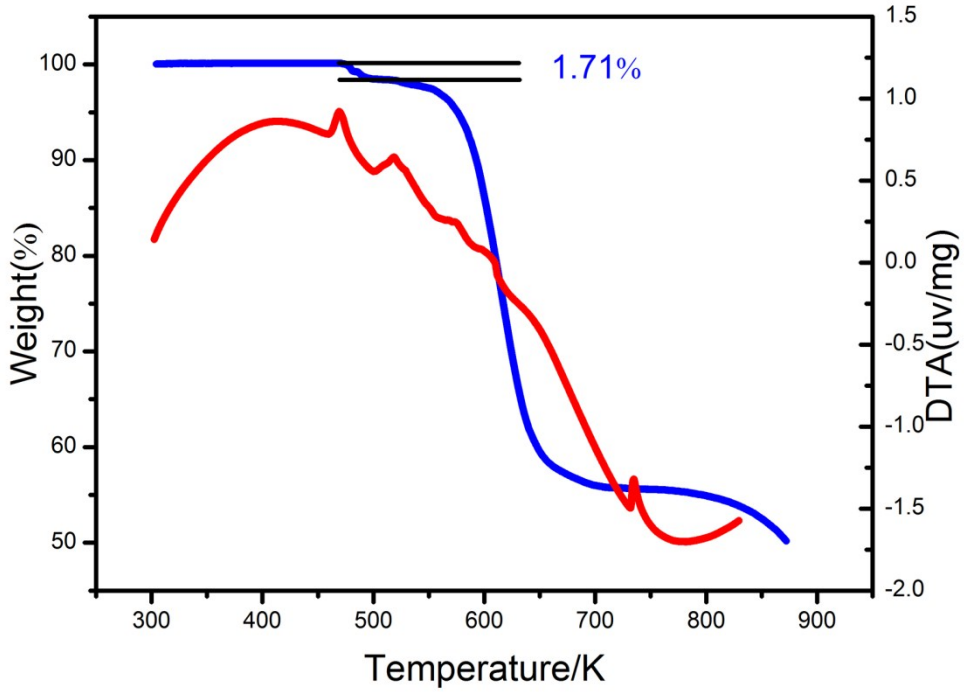

Figure S7. DTA and thermogravimetric curves for **NAPC.**

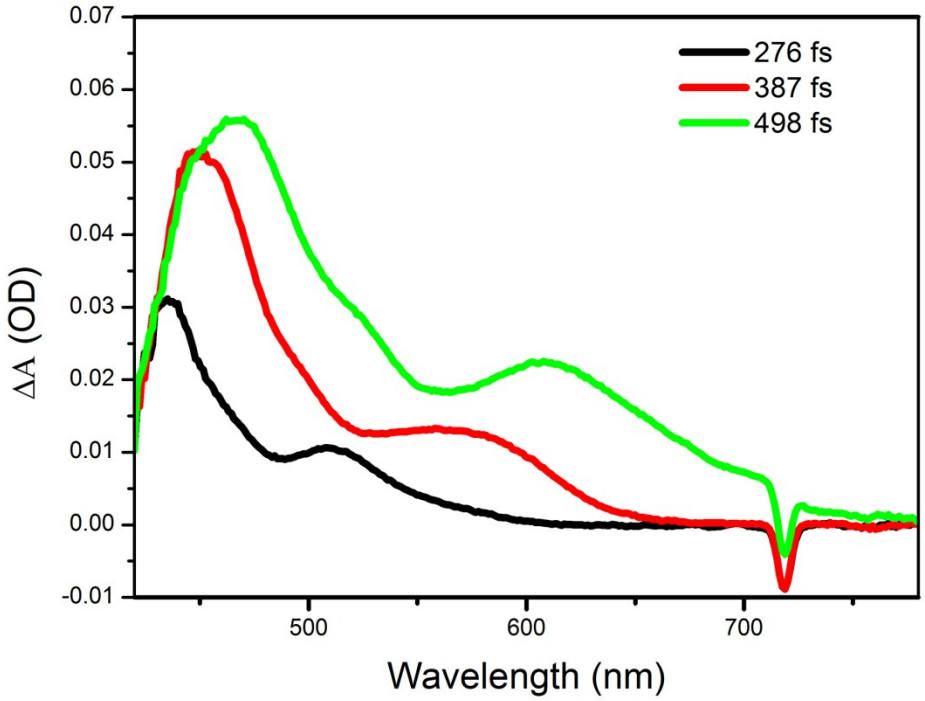

Figure S8. Details of transient (TA) absorption for **NAPC** excited by 360 nm wavelength laser. optical density. Photo-induced absorption is observed throughout the whole visible spectrum. The irregular peaks located at ~720 nm are from frequency doubling of the light source.

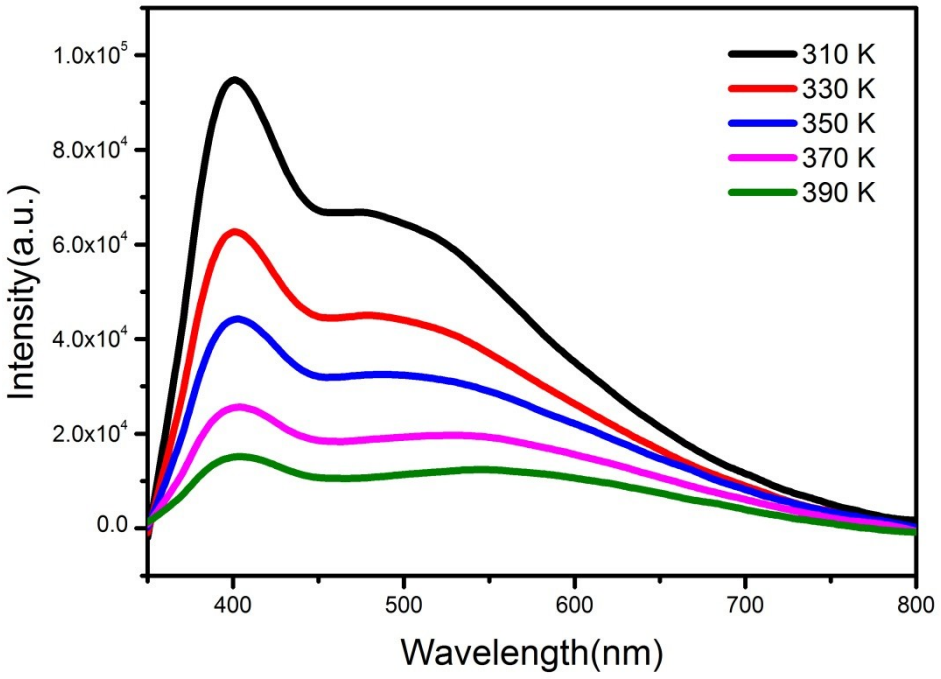

Figure S9. Emission spectra of compound **NAPC** at different temperatures.

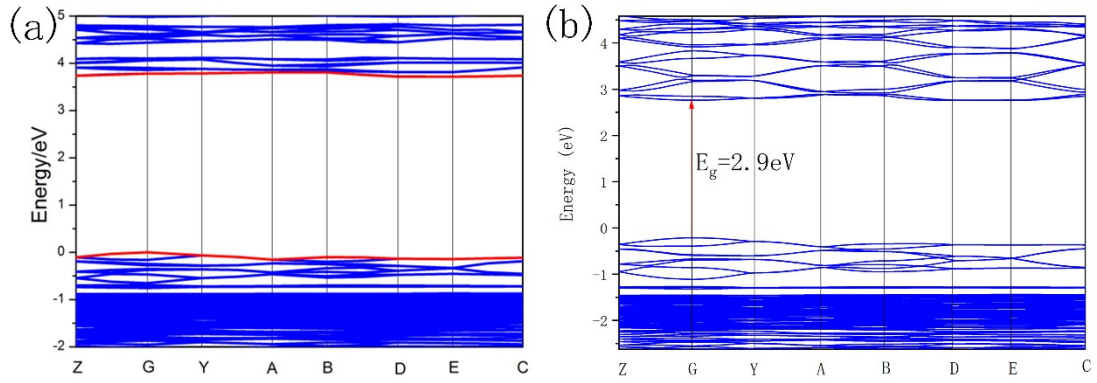

Figure S10. calculated band gap of **NAPC**. (a) without spin-orbit coupling, 3.7 eV, (b) with spin-orbit coupling, 2.9 eV.

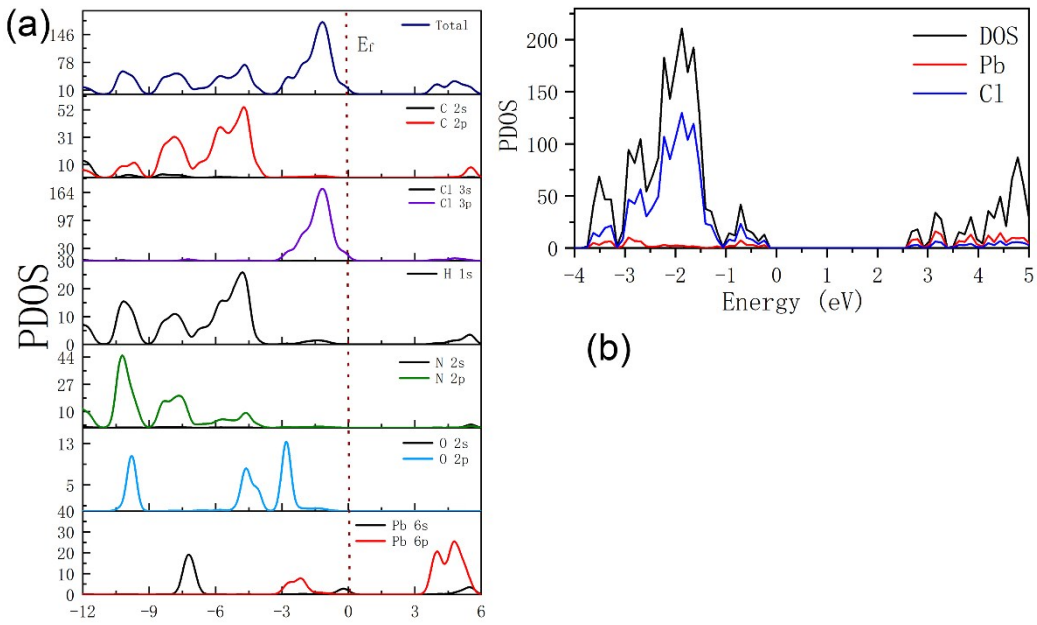

Figure S11. Partial density of states. (a) without spin-orbit coupling (SOC), (b) with SOC.

Table S1. Crystal Data and Structure Refinement for **NAPC**

Empirical formula	$C_{12}H_{38}Cl_{10}N_6OPb_2$
Formula weight	1051.36
Temperature/K	100 (2)
Space group	$P2_1/c$
a/Å	13.3797 (3)
b/Å	17.0669 (3)
c/Å	13.1789 (3)
α/°	90.00
β/°	96.323 (2)
γ/°	90.00
Volume/Å^3	2991.09 (11)
Z	4
ρ_{calc}g/cm^3	2.335
μ/mm^{-1}	12.155
F(000)	1976.0
Radiation	Mo Kα (λ = 0.71073)
2θ range for data collection/°	6.98 to 52.74

Index ranges	$-16 \leqslant h \leqslant 15, -21 \leqslant k \leqslant 21, -14 \leqslant l \leqslant 16$
Reflections collected	18228
Independent reflections	6071 [$R_{int} = 0.0526$]
Data/restraints/parameters	6071/32/287
Goodness-of-fit on F^2	1.082
Final R indexes [I>=2σ (I)]	$R_1 = 0.0372$, $wR_2 = 0.0912$
Final R indexes [all data]	$R_1 = 0.0412$, $wR_2 = 0.0939$
Largest diff. peak/hole / e $Å^{-3}$	2.90/-3.35

Table S2. The Pb–Cl bond lengths of **NAPC**

Bond	(Å)	Bond	(Å)
Pb(1)– Cl(1)	2.8037(16)	Pb(2)– Cl(6)	2.9780(18)
Pb(1)– Cl(2)	3.0308(2)	Pb(2)– Cl(7)	2.7647(17)
Pb(1)– Cl(3)	2.8625(16)	Pb(2)– Cl(8)	3.0134(17)
Pb(1)– Cl(4)	2.8022(16)	Pb(2)– Cl(9)	2.8965(2)
Pb(1)– Cl(5)	2.8138(16)	Pb(2)– Cl(10)	2.7512(18)
Pb(1)– Cl(6)	2.9324(18)	Pb(2)– Cl(11)	2.8095(15)

Table S3 Hydrogen bond lengths and bond angles

Bond	d(D-H)	d(H..A)	d(D..A)	D-H…A
N(1)-H(1A)..Cl(5)	0.92	2.36	3.228(5)	158
N(1)-H(1B)..O(1)	0.92	1.8	2.782(7)	165
N(2)-H(2)..Cl(7)$^{\#3}$	0.93	2.54	3.304(5)	130
N(2)-H(2)..Cl(11)$^{\#3}$	0.93	2.54	3.304(5)	139
N(3)-H(3C)..Cl(9)$^{\#4}$	0.91	2.54	3.396(9)	157
N(3)-H(3D)..Cl(8)$^{\#5}$	0.91	2.24	3.059(9)	150
N(3)-H(3E)..Cl(7)$^{\#3}$	0.91	2.16	3.035(9)	161
N(4)-H(4C)..O(1)$^{\#6}$	0.92	1.90	2.817(7)	174
N(4)-H(4D)..Cl(3)$^{\#6}$	0.92	2.35	3.157(6)	147
N(5)-H(5)..Cl(1)$^{\#7}$	0.93	2.59	3.304(5)	134
N(5)-H(5)..Cl(4)$^{\#7}$	0.93	2.48	3.210(6)	135
N(6)-H(6C)..Cl(4)	0.91	2.35	3.160(5)	148

N(6)-H(6D)..Cl(11)[#1]	0.91	2.29	3.180(5)	165
N(6)-H(6E)..Cl(1)[#7]	0.91	2.29	3.188(5)	169
O(1)-H(13)..Cl(1)[#2]	0.83	2.27	3.069(6)	162
O(1)-H(14)..Cl(7)	0.87	2.31	3.059(6)	144
C(2)--H(2A)..Cl(5)	0.99	2.73	3.543(7)	140
C(2)--H(2B)..Cl(10) [#4]	0.99	2.78	3.728(7)	161
C(2)--H(2B)..Cl(7) [#3]	0.99	2.73	3.246(7)	113
C(3)--H(3A)..Cl(3) [#2]	0.99	2.75	3.433(7)	127
C(5)--H(5A)..Cl(11) [#4]	0.99	2.82	3.758(8)	158
C(6)--H(6A)..Cl(11) [#3]	0.99	2.81	3.692(9)	148
C(6)--H(6B)..Cl(6) [#5]	0.99	2.66	3.634(9)	169
C(7)--H(7B)..Cl(1) [#7]	0.99	2.68	3.406(7)	131
C(10)--H(10A)..Cl(3)	0.99	2.78	3.633(7)	144
C(11)--H(11A)..Cl(10)	0.99	2.75	3.657(7)	152
C(11)--H(11B)..Cl(3)	0.99	2.83	3.655(7)	142

Symmetry transformations used to generate equivalent atoms:
[#1] =1-x,-y,-z [#2] =2-x,-y,1- [#3] =1-x,-y,1-z [#4] =1-x,1/2+y,1/2-z
[#5] =x,1/2-y,1/2+z [#6] =x,-1/2-y,-1/2+z [#7] =2-x,-y,-z