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10.1071/CH02038_AC © CSIRO 2002 Accessory Publication: Aust. J. Chem., 2002, 55(8), 539-542. data_[Co(cpg)(2,2'-bpy)2](ClO4)2 _audit_creation_method SHELXL-97 _chemical_name_systematic ; ? ; ? _chemical_name_common _chemical_melting_point ? _chemical_formula_moiety ? _chemical_formula_sum 'C25 H24 Cl2 Co N5 O10.13' _chemical_formula_weight 686.32 loop _atom_type_symbol _atom_type_description _atom_type_scat_dispersion_real _atom_type_scat_dispersion_imag _atom_type_scat_source 'C' 'C' 0.0033 0.0016 'International Tables Vol C Tables 4.2.6.8 and 6.1.1.4' 'H' 'H' 0.0000 0.0000 'International Tables Vol C Tables 4.2.6.8 and 6.1.1.4' 'N' 'N' 0.0061 0.0033 'International Tables Vol C Tables 4.2.6.8 and 6.1.1.4' '0' '0' 0.0106 0.0060 'International Tables Vol C Tables 4.2.6.8 and 6.1.1.4' 'Cl' 'Cl' 0.1484 0.1585 'International Tables Vol C Tables 4.2.6.8 and 6.1.1.4' 'Co' 'Co' 0.3494 0.9721 'International Tables Vol C Tables 4.2.6.8 and 6.1.1.4' _symmetry_cell_setting Monoclinic P2~1~/c _symmetry_space_group_name_H-M loop_ _symmetry_equiv_pos_as_xyz 'x, y, z' '-x, y+1/2, -z+1/2' '-x, -y, -z' 'x, -y-1/2, z-1/2' _cell_length_a 12.560(11)_cell_length_b 17.755(15)_cell_length_c 12.354(11)_cell_angle_alpha 90.00 _cell_angle_beta 91.366(10) _cell_angle_gamma 90.00 _cell_volume 2754(4) _cell_formula_units_Z 4 _cell_measurement_temperature 163(2)
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Refinement of F^2^ against ALL reflections. The weighted R-factor wR and goodness of fit S are based on F^2^, conventional R-factors R are based on F, with F set to zero for negative F^2^. The threshold expression of $F^2^ > 2 \operatorname{sigma}(F^2^)$ is used only for calculating R-factors(gt) etc. and is not relevant to the choice of reflections for refinement. R-factors based

on F^2^ are statistically about twice as large as those based on F, and R-factors based on ALL data will be even larger.

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H2'A H 0.4888 -0.6078 0.6897 0.077 Uiso 0.187(4) 1 calc PRD B 4 C3' C 0.5795 -0.5350 0.6596 0.099 Uani 0.19 1 d PD B 4 H3'A H 0.5981 -0.4822 0.6390 0.119 Uiso 0.187(4) 1 calc PR B 4 C4' C 0.6603(3) -0.5826(3) 0.7544(3) 0.0727(14) Uani 0.19 1 d P B 4 H4'A H 0.7215 -0.5550 0.7871 0.087 Uiso 0.187(4) 1 calc PR B 4 H4'B H 0.6257 -0.6189 0.8033 0.087 Uiso 0.187(4) 1 calc PR B 4 C5' C 0.6645(2) -0.6020(2) 0.6386(3) 0.0685(14) Uani 0.19 1 d P B 4 H5'A H 0.6350 -0.6516 0.6167 0.082 Uiso 0.187(4) 1 calc PR B 4 H5'B H 0.7302 -0.5881 0.6007 0.082 Uiso 0.187(4) 1 calc PR B 4 C6 C 0.2699(3) -0.6919(2) 0.7233(3) 0.0522(10) Uani 1 1 d . B . H6 H 0.2898 -0.6873 0.6499 0.063 Uiso 1 1 calc R . C7 C 0.2685(3) -0.7630(2) 0.7689(4) 0.0686(12) Uani 1 1 d . . . H7 H 0.2895 -0.8058 0.7285 0.082 Uiso 1 1 calc R B . C8 C 0.2360(3) -0.7705(3) 0.8742(4) 0.0738(13) Uani 1 1 d . B . H8 H 0.2338 -0.8187 0.9076 0.089 Uiso 1 1 calc R . . C9 C 0.2068(3) -0.7068(3) 0.9302(3) 0.0584(11) Uani 1 1 d . . . H9 H 0.1823 -0.7110 1.0021 0.070 Uiso 1 1 calc R B . C10 C 0.2132(2) -0.6363(2) 0.8808(3) 0.0433(10) Uani 1 1 d . B . C11 C 0.1904(2) -0.5647(2) 0.9331(3) 0.0425(10) Uani 1 1 d . B . C12 C 0.1447(3) -0.5575(3) 1.0333(3) 0.0632(13) Uani 1 1 d . . . H12 H 0.1284 -0.6008 1.0750 0.076 Uiso 1 1 calc R B . C13 C 0.1230(3) -0.4860(3) 1.0716(3) 0.0697(14) Uani 1 1 d . B . H13 H 0.0892 -0.4802 1.1391 0.084 Uiso 1 1 calc R . . C14 C 0.1501(3) -0.4227(3) 1.0126(3) 0.0600(12) Uani 1 1 d . . . H14 H 0.1366 -0.3735 1.0393 0.072 Uiso 1 1 calc R B . C15 C 0.1973(2) -0.4332(2) 0.9136(3) 0.0453(10) Uani 1 1 d . B . H15 H 0.2164 -0.3903 0.8723 0.054 Uiso 1 1 calc R . . C16 C 0.0371(2) -0.5603(2) 0.6829(2) 0.0376(9) Uani 1 1 d . B . H16 H 0.0524 -0.6088 0.7117 0.045 Uiso 1 1 calc R . . C17 C -0.0655(2) -0.5442(2) 0.6479(2) 0.0424(10) Uani 1 1 d . . . H17 H -0.1200 -0.5811 0.6526 0.051 Uiso 1 1 calc R B . C18 C -0.0882(2) -0.4734(2) 0.6057(2) 0.0431(9) Uani 1 1 d . B . H18 H -0.1585 -0.4614 0.5815 0.052 Uiso 1 1 calc R . . C19 C -0.0078(3) -0.4206(2) 0.5992(2) 0.0397(9) Uani 1 1 d . . . H19 H -0.0222 -0.3720 0.5703 0.048 Uiso 1 1 calc R B . C20 C 0.0951(3) -0.4397(2) 0.6360(2) 0.0334(8) Uani 1 1 d . B . C21 C 0.1879(2) -0.3891(2) 0.6333(2) 0.0333(8) Uani 1 1 d . B . C22 C 0.1876(3) -0.3191(2) 0.5850(2) 0.0390(9) Uani 1 1 d . . . H22 H 0.1239 -0.2997 0.5527 0.047 Uiso 1 1 calc R B . C23 C 0.2798(3) -0.2774(2) 0.5838(2) 0.0455(10) Uani 1 1 d . B . H23 H 0.2807 -0.2294 0.5500 0.055 Uiso 1 1 calc R . . C24 C 0.3716(3) -0.3065(2) 0.6328(3) 0.0481(10) Uani 1 1 d . . . H24 H 0.4361 -0.2785 0.6335 0.058 Uiso 1 1 calc R B . C25 C 0.3673(3) -0.3767(2) 0.6805(3) 0.0455(10) Uani 1 1 d . B . H25 H 0.4300 -0.3962 0.7149 0.055 Uiso 1 1 calc R . . 01 0 0.30005(16) -0.55537(12) 0.58917(15) 0.0405(6) Uani 1 1 d . B . 02 0 0.43477(17) -0.58864(14) 0.48839(18) 0.0603(7) Uani 1 1 d . B . Cl1 Cl 0.03335(7) -0.23770(6) 0.32379(7) 0.0460(3) Uani 1 1 d . . . 011 0 -0.00052(18) -0.15984(14) 0.31131(18) 0.0634(7) Uani 1 1 d . . . 012 0 0.01593(19) -0.27768(14) 0.22326(17) 0.0668(8) Uani 1 1 d . . . 013 0 -0.02669(17) -0.27427(13) 0.40749(16) 0.0544(7) Uani 1 1 d . . . 014 0 0.14464(17) -0.23985(13) 0.35390(17) 0.0541(7) Uani 1 1 d . . . Cl2 Cl 0.51762(8) -0.14449(7) 0.44938(7) 0.0517(3) Uani 1 1 d . . 021 0 0.5095(15) -0.2149(6) 0.4007(10) 0.100(6) Uani 0.51(2) 1 d PU C 1 022 0 0.6004(12) -0.1016(9) 0.3998(12) 0.098(5) Uani 0.51(2) 1 d P C 1 023 0 0.4287(13) -0.0990(9) 0.4362(11) 0.098(5) Uani 0.51(2) 1 d P C 1 024 0 0.54312(18) -0.15297(15) 0.56209(18) 0.0676(8) Uani 1 1 d . C . 021' 0 0.561(2) -0.2045(14) 0.3949(15) 0.191(9) Uani 0.49(2) 1 d PU C 2 022' 0 0.558(2) -0.0823(14) 0.4055(17) 0.183(9) Uani 0.49(2) 1 d P C 2 023' 0 0.4059(9) -0.151(2) 0.4322(12) 0.148(10) Uani 0.49(2) 1 d P C 2 010 0 0.682(2) -0.4268(18) 0.713(2) 0.153(12) Uani 0.13 1 d P . .

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All esds (except the esd in the dihedral angle between two l.s. planes) are estimated using the full covariance matrix. The cell esds are taken into account individually in the estimation of esds in distances, angles and torsion angles; correlations between esds in cell parameters are only used when they are defined by crystal symmetry. An approximate (isotropic) treatment of cell esds is used for estimating esds involving l.s. planes.

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Cl2 022' 1.333(15) . ? Cl2 021' 1.381(15) . ? Cl2 023 1.385(11) . ? Cl2 021 1.391(10) . ? Cl2 023' 1.419(11) . ? Cl2 024 1.429(3) . ? Cl2 022 1.438(14) . ? loop_ _geom_angle_atom_site_label_1 _geom_angle_atom_site_label_2 _geom_angle_atom_site_label_3 _geom_angle_site_symmetry_1 _geom_angle_site_symmetry_3

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N2 C10 C11 113.6(3) . . ?

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_refine_diff_density_min -0.311 _refine_diff_density_rms 0.057 data_[Co(cpg)(2,2'-bpy)2](ClO4)2.2H2O _audit_creation_method SHELXL-97 _chemical_name_systematic ; ? ; _chemical_name_common ? _chemical_melting_point ? _chemical_formula_moiety ? _chemical_formula_sum 'C25 H28 Cl2 Co N5 O12' _chemical_formula_weight 720.35 loop _atom_type_symbol _atom_type_description _atom_type_scat_dispersion_real _atom_type_scat_dispersion_imag _atom_type_scat_source 'C' 'C' 0.0033 0.0016 'International Tables Vol C Tables 4.2.6.8 and 6.1.1.4' 'H' 'H' 0.0000 0.0000 'International Tables Vol C Tables 4.2.6.8 and 6.1.1.4' 'N' 'N' 0.0061 0.0033 'International Tables Vol C Tables 4.2.6.8 and 6.1.1.4' '0' '0' 0.0106 0.0060 'International Tables Vol C Tables 4.2.6.8 and 6.1.1.4' 'Cl' 'Cl' 0.1484 0.1585 'International Tables Vol C Tables 4.2.6.8 and 6.1.1.4' 'Co' 'Co' 0.3494 0.9721 'International Tables Vol C Tables 4.2.6.8 and 6.1.1.4' _symmetry_cell_setting Triclinic _symmetry_space_group_name_H-M P-1 loop_ _symmetry_equiv_pos_as_xyz 'x, y, z' '-x, -y, -z' cell length a 10.405(3)cell length b 16.826(5)cell length c 17.732(5)_cell_angle_alpha 72.538(4) _cell_angle_beta 79.462(4) _cell_angle_gamma 83.657(4) cell volume 2906.4(13)_cell_formula_units_Z 4 163(2) _cell_measurement_temperature _cell_measurement_reflns_used 8038 2.43 _cell_measurement_theta_min _cell_measurement_theta_max 26.42 _exptl_crystal_description block _exptl_crystal_colour orange _exptl_crystal_size_max 0.50 _exptl_crystal_size_mid 0.47

0.14 _exptl_crystal_size_min _exptl_crystal_density_meas 2 1.646 _exptl_crystal_density_diffrn _exptl_crystal_density_method 'not measured' _exptl_crystal_F_000 1480 0.848 _exptl_absorpt_coefficient_mu _exptl_absorpt_correction_type 'multi-scan' _exptl_absorpt_correction_T_min 0.864 _exptl_absorpt_correction_T_max 1.000 _exptl_absorpt_process_details 'SADABS (Bruker, 1997)' _exptl_special_details ; ? ; _diffrn_ambient_temperature 163(2)_diffrn_radiation_wavelength 0.71073 _diffrn_radiation_type MoK∖a _diffrn_radiation_source 'fine-focus sealed tube' _diffrn_radiation_monochromator graphite _diffrn_measurement_device_type 'CCD area detector' _diffrn_measurement_method 'phi and omega scans' _diffrn_detector_area_resol_mean 8.192 _diffrn_standards_number ? _diffrn_standards_interval_count ? _diffrn_standards_interval_time ? _diffrn_standards_decay_% ? _diffrn_reflns_number 37422 0.0265 _diffrn_reflns_av_R_equivalents 0.0299 _diffrn_reflns_av_sigmaI/netI _diffrn_reflns_limit_h_min -12 _diffrn_reflns_limit_h_max 13 _diffrn_reflns_limit_k_min -20 _diffrn_reflns_limit_k_max 20 _diffrn_reflns_limit_l_min -21 _diffrn_reflns_limit_l_max 22 _diffrn_reflns_theta_min 1.99 _diffrn_reflns_theta_max 26.45 _reflns_number_total 11754 _reflns_number_gt 9200 _reflns_threshold_expression >2sigma(I) _computing_data_collection 'SMART v5.05, (Bruker 1997)' computing cell refinement 'SAINT v5.05, (Bruker 1997)' 'SAINT v5.05, (Bruker 1997)' computing data reduction computing structure solution 'SHELXS-97, (Sheldrick, 1990)' _computing_structure_refinement 'SHELXL-97, (Sheldrick, 1997)' _computing_molecular_graphics 'SHELXTL v5.10, (Bruker 1997)' 'SHELXTL v5.10, (Bruker 1997)' _computing_publication_material

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Refinement of $F^{2^{a}}$ against ALL reflections. The weighted R-factor wR and goodness of fit S are based on $F^{2^{a}}$, conventional R-factors R are based on F, with F set to zero for negative $F^{2^{a}}$. The threshold expression of $F^{2^{a}} > 2 \text{sigma}(F^{2^{a}})$ is used only for calculating R-factors(gt) etc. and is not relevant to the choice of reflections for refinement. R-factors based on $F^{2^{a}}$ are statistically about twice as large as those based on F, and Rfactors based on ALL data will be even larger.

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 'calc w=1/[\s^2^(Fo^2^)+(0.0676P)^2^+0.8977P] where P=(Fo^2^+2Fc^2^)/3'
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Co2 Co 0.54576(3) -0.49282(2) 0.273998(19) 0.02225(10) Uani 1 1 d . . .
Cll Cl 0.66007(8) -1.18546(5) 0.64304(5) 0.0476(2) Uani 1 1 d . . .
Cl2 Cl 0.21156(7) -0.70065(4) -0.02812(4) 0.03860(18) Uani 1 1 d . . .
Cl3 Cl -0.03113(8) -0.64066(5) 0.68951(4) 0.04351(19) Uani 1 1 d . . .
Cl4 Cl 0.21148(7) -0.10057(5) -0.15062(4) 0.03817(17) Uani 1 1 d . . .
011 0 0.7550(3) -1.24889(17) 0.6738(2) 0.0813(9) Uani 1 1 d . . .
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013 0 0.0339(3) -0.70688(17) 0.65777(17) 0.0677(8) Uani 1 1 d . . .
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023 0 -0.1656(3) -0.6399(2) 0.6886(2) 0.1132(15) Uani 1 1 d . . .
024 0 0.2747(2) -0.03265(15) -0.14037(13) 0.0494(6) Uani 1 1 d . . .
O31 O 0.5863(3) -1.15783(16) 0.70825(19) 0.0859(11) Uani 1 1 d . . .
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O33 O -0.0028(4) -0.65682(18) 0.76904(16) 0.0882(11) Uani 1 1 d . .
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050 0 0.2718(2) -1.05816(14) 0.47441(12) 0.0448(5) Uani 1 1 d . . .
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H501 H 0.3225 -1.1091 0.4991 0.067 Uiso 1 1 d R . . H502 H 0.3172 -1.0127 0.4808 0.067 Uiso 1 1 d R . O51 O 0.3367(2) -1.21678(16) 0.55899(16) 0.0619(7) Uani 1 1 d . . . H512 H 0.4109 -1.2230 0.5905 0.093 Uiso 1 1 d R . . H511 H 0.2816 -1.2598 0.5809 0.093 Uiso 1 1 d R . 060 0 0.1296(2) -0.32956(15) -0.07353(17) 0.0618(7) Uani 1 1 d . . . H601 H 0.0487 -0.3306 -0.0486 0.093 Uiso 1 1 d R . . H602 H 0.1578 -0.2795 -0.0851 0.093 Uiso 1 1 d R . 061 0 0.26234(19) -0.48197(12) -0.05792(11) 0.0355(5) Uani 1 1 d . . . H612 H 0.2121 -0.5199 -0.0352 0.053 Uiso 1 1 d R . . H611 H 0.2194 -0.4401 -0.0582 0.053 Uiso 1 1 d R . . O1 O 0.63180(18) -0.57885(11) 0.34618(10) 0.0284(4) Uani 1 1 d . . . 01' 0 0.36428(18) -0.12869(11) 0.22803(10) 0.0279(4) Uani 1 1 d . . . 02 0 0.8233(2) -0.64089(13) 0.37252(12) 0.0450(6) Uani 1 1 d . . . 02' 0 0.5663(2) -0.18279(13) 0.23733(13) 0.0426(5) Uani 1 1 d . . . N1 N 0.7191(2) -0.47426(13) 0.20882(12) 0.0249(5) Uani 1 1 d . B . H1A H 0.7227 -0.4910 0.1636 0.030 Uiso 1 1 calc R . . H1B H 0.7333 -0.4182 0.1930 0.030 Uiso 1 1 calc R . N1' N 0.3726(2) -0.01580(13) 0.30049(13) 0.0260(5) Uani 1 1 d . A . H1'1 H 0.3866 0.0403 0.2840 0.031 Uiso 1 1 calc R . . H1'2 H 0.3391 -0.0302 0.3542 0.031 Uiso 1 1 calc R . . N2 N 0.5201(2) -0.56551(13) 0.21172(12) 0.0254(5) Uani 1 1 d . . . N2' N 0.1535(2) -0.10122(14) 0.34244(13) 0.0287(5) Uani 1 1 d . . . N3 N 0.4540(2) -0.41032(12) 0.19716(12) 0.0220(4) Uani 1 1 d . . . N3' N 0.1283(2) 0.05305(13) 0.26207(13) 0.0266(5) Uani 1 1 d . . . N4 N 0.3829(2) -0.52097(13) 0.34840(12) 0.0268(5) Uani 1 1 d . . . N4' N 0.1347(2) -0.06941(13) 0.17992(12) 0.0243(5) Uani 1 1 d . . . N5 N 0.5584(2) -0.41818(13) 0.33799(12) 0.0273(5) Uani 1 1 d . . . N5' N 0.3292(2) 0.02775(13) 0.13571(12) 0.0245(5) Uani 1 1 d . . . Cl' C 0.4789(3) -0.13180(17) 0.24895(16) 0.0292(6) Uani 1 1 d . A . C1 C 0.7588(3) -0.58597(17) 0.32958(16) 0.0312(6) Uani 1 1 d . B . C2' C 0.4993(3) -0.06420(19) 0.28767(19) 0.0359(7) Uani 1 1 d D . . H2' H 0.5616 -0.0302 0.2494 0.043 Uiso 0.845(8) 1 d PRD A 1 H20' H 0.4628 -0.0972 0.3285 0.043 Uiso 0.155(8) 1 d PRD A 2 C3' C 0.5565(4) -0.0982(2) 0.3624(2) 0.0325(10) Uani 0.845(8) 1 d PD A 1 H3'A H 0.5099 -0.1448 0.4041 0.039 Uiso 0.845(8) 1 calc PR A 1 C30' C 0.604(3) -0.077(3) 0.335(2) 0.097(15) Uani 0.155(8) 1 d PD A 2 H30A H 0.5571 -0.1236 0.3769 0.117 Uiso 0.155(8) 1 calc PR A 2 C2 C 0.8238(3) -0.52210(18) 0.25525(16) 0.0314(7) Uani 0.977(5) 1 d PD . . H2 H 0.8718 -0.4823 0.2719 0.038 Uiso 0.977(5) 1 d PRD B 3 H20 H 0.8207 -0.5495 0.2227 0.038 Uiso 0.023(5) 1 d PRD B 4 C3 C 0.9295(3) -0.5614(2) 0.20536(18) 0.0360(8) Uani 0.977(5) 1 d PD B 3 H3A H 0.9038 -0.6096 0.1906 0.043 Uiso 0.977(5) 1 calc PR B 3 C30 C 0.962(3) -0.509(5) 0.218(3) 0.01(2) Uani 0.023(5) 1 d PD B 4 H30B H 0.9895 -0.4611 0.2332 0.008 Uiso 0.023(5) 1 calc PR B 4 C4' C 0.6150(4) -0.0376(2) 0.3940(2) 0.0585(12) Uani 0.845(8) 1 d P A 1 H4'A H 0.6166 0.0217 0.3617 0.070 Uiso 0.845(8) 1 calc PR A 1 H4'B H 0.6015 -0.0469 0.4527 0.070 Uiso 0.845(8) 1 calc PR A 1 C5' C 0.7015(4) -0.1004(2) 0.3606(3) 0.0590(12) Uani 0.845(8) 1 d P A 1 H5'A H 0.7569 -0.0796 0.3078 0.071 Uiso 0.845(8) 1 calc PR A 1 H5'B H 0.7418 -0.1480 0.3987 0.071 Uiso 0.845(8) 1 calc PR A 1 C40' C 0.6150(4) -0.0376(2) 0.3940(2) 0.0585(12) Uani 0.15 1 d P A 2 H40A H 0.5623 -0.0567 0.4479 0.070 Uiso 0.155(8) 1 calc PR A 2 H40B H 0.6394 0.0212 0.3764 0.070 Uiso 0.155(8) 1 calc PR A 2 C50' C 0.7015(4) -0.1004(2) 0.3606(3) 0.0590(12) Uani 0.15 1 d P A 2 H50A H 0.7841 -0.0812 0.3251 0.071 Uiso 0.155(8) 1 calc PR A 2 H50B H 0.7078 -0.1583 0.3958 0.071 Uiso 0.155(8) 1 calc PR A 2 C4 C 1.0264(3) -0.5057(2) 0.1430(2) 0.0453(9) Uani 0.977(5) 1 d P B 3 H4A H 1.0561 -0.5192 0.0917 0.054 Uiso 0.977(5) 1 calc PR B 3 H4B H 1.0186 -0.4454 0.1388 0.054 Uiso 0.977(5) 1 calc PR B 3 C5 C 1.0686(3) -0.5647(2) 0.2165(2) 0.0457(9) Uani 0.977(5) 1 d P B 3

H5A H 1.0877 -0.5408 0.2577 0.055 Uiso 0.977(5) 1 calc PR B 3 H5B H 1.1251 -0.6145 0.2107 0.055 Uiso 0.977(5) 1 calc PR B 3 C40 C 1.0264(3) -0.5057(2) 0.1430(2) 0.0453(9) Uani 0.02 1 d P B 4 H40C H 1.0801 -0.4575 0.1139 0.054 Uiso 0.023(5) 1 calc PR B 4 H40D H 0.9840 -0.5286 0.1091 0.054 Uiso 0.023(5) 1 calc PR B 4 C50 C 1.0686(3) -0.5647(2) 0.2165(2) 0.0457(9) Uani 0.02 1 d P B 4 H50C H 1.0525 -0.6245 0.2286 0.055 Uiso 0.023(5) 1 calc PR B 4 H50D H 1.1486 -0.5534 0.2334 0.055 Uiso 0.023(5) 1 calc PR B 4 C6' C 0.1768(3) -0.18276(18) 0.37833(17) 0.0350(6) Uani 1 1 d . . . H6' H 0.2436 -0.2139 0.3532 0.042 Uiso 1 1 calc R . . C6 C 0.5680(3) -0.64540(16) 0.22208(16) 0.0304(6) Uani 1 1 d . . . H6 H 0.6168 -0.6706 0.2645 0.037 Uiso 1 1 calc R . . C7' C 0.1042(3) -0.2225(2) 0.45200(18) 0.0430(8) Uani 1 1 d . . . H7' H 0.1226 -0.2800 0.4772 0.052 Uiso 1 1 calc R . . C7 C 0.5483(3) -0.69175(18) 0.17279(18) 0.0365(7) Uani 1 1 d . . . H7 H 0.5839 -0.7476 0.1809 0.044 Uiso 1 1 calc R . . C8' C 0.0056(3) -0.1776(2) 0.48790(18) 0.0473(8) Uani 1 1 d . . . H8' H -0.0449 -0.2040 0.5378 0.057 Uiso 1 1 calc R . . C8 C 0.4766(3) -0.65585(19) 0.11216(18) 0.0388(7) Uani 1 1 d . . . H8 H 0.4613 -0.6867 0.0781 0.047 Uiso 1 1 calc R . . C9' C -0.0188(3) -0.0936(2) 0.45012(18) 0.0420(7) Uani 1 1 d . . . H9' H -0.0869 -0.0619 0.4737 0.050 Uiso 1 1 calc R . . C9 C 0.4267(3) -0.57396(18) 0.10115(17) 0.0339(6) Uani 1 1 d . . . H9 H 0.3761 -0.5484 0.0598 0.041 Uiso 1 1 calc R . . C10' C 0.0568(3) -0.05644(19) 0.37783(16) 0.0316(6) Uani 1 1 d . . . C10 C 0.4515(2) -0.52964(16) 0.15119(15) 0.0253(5) Uani 1 1 d . . . C11' C 0.0433(3) 0.03221(18) 0.33212(16) 0.0319(6) Uani 1 1 d . . . C11 C 0.4097(2) -0.44184(16) 0.14486(15) 0.0245(5) Uani 1 1 d . . . C12' C -0.0450(3) 0.0915(2) 0.35652(19) 0.0432(8) Uani 1 1 d . . . H12' H -0.1038 0.0762 0.4056 0.052 Uiso 1 1 calc R . . C12 C 0.3319(3) -0.39283(17) 0.09092(16) 0.0314(6) Uani 1 1 d . . . H12 H 0.3011 -0.4154 0.0549 0.038 Uiso 1 1 calc R . . C13' C -0.0458(3) 0.1733(2) 0.3082(2) 0.0472(8) Uani 1 1 d . . . H13' H -0.1047 0.2148 0.3240 0.057 Uiso 1 1 calc R . . C13 C 0.2993(3) -0.31036(17) 0.08995(17) 0.0333(6) Uani 1 1 d . . . H13 H 0.2447 -0.2762 0.0539 0.040 Uiso 1 1 calc R . . C14' C 0.0396(3) 0.19386(19) 0.2369(2) 0.0405(7) Uani 1 1 d . . . H14' H 0.0394 0.2496 0.2030 0.049 Uiso 1 1 calc R . . C14 C 0.3469(3) -0.27834(16) 0.14179(16) 0.0290(6) Uani 1 1 d . . . H14 H 0.3264 -0.2218 0.1413 0.035 Uiso 1 1 calc R . . C15' C 0.1254(3) 0.13284(17) 0.21517(17) 0.0317(6) Uani 1 1 d . . . H15' H 0.1840 0.1474 0.1660 0.038 Uiso 1 1 calc R . . C15 C 0.4246(3) -0.32957(16) 0.19447(15) 0.0256(5) Uani 1 1 d . . . H15 H 0.4582 -0.3073 0.2297 0.031 Uiso 1 1 calc R . . C16' C 0.0328(3) -0.11959(17) 0.20851(17) 0.0316(6) Uani 1 1 d . . . H16' H 0.0040 -0.1375 0.2646 0.038 Uiso 1 1 calc R . . C16 C 0.2995(3) -0.57709(18) 0.34938(17) 0.0350(7) Uani 1 1 d . . . H16 H 0.3161 -0.6046 0.3087 0.042 Uiso 1 1 calc R . . C17' C -0.0307(3) -0.14566(18) 0.15869(18) 0.0358(7) Uani 1 1 d . . . H17' H -0.1020 -0.1807 0.1805 0.043 Uiso 1 1 calc R . . C17 C 0.1904(3) -0.5961(2) 0.40779(19) 0.0426(8) Uani 1 1 d . . . H17 H 0.1327 -0.6357 0.4068 0.051 Uiso 1 1 calc R . . C18' C 0.0105(3) -0.12023(17) 0.07754(18) 0.0349(7) Uani 1 1 d . . . H18' H -0.0303 -0.1388 0.0426 0.042 Uiso 1 1 calc R . . C18 C 0.1663(3) -0.5569(2) 0.46737(18) 0.0462(9) Uani 1 1 d . . . H18 H 0.0918 -0.5691 0.5079 0.055 Uiso 1 1 calc R . . C19' C 0.1134(3) -0.06661(17) 0.04684(16) 0.0309(6) Uani 1 1 d . . . H19' H 0.1420 -0.0474 -0.0093 0.037 Uiso 1 1 calc R . . C19 C 0.2521(3) -0.4994(2) 0.46759(17) 0.0382(7) Uani 1 1 d . . . H19 H 0.2373 -0.4720 0.5084 0.046 Uiso 1 1 calc R . . C20' C 0.1729(2) -0.04200(15) 0.09935(15) 0.0244(5) Uani 1 1 d . . .

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C20 C 0.3596(3) -0.48259(17) 0.40755(15) 0.0303(6) Uani 1 1 d . . .
C21' C 0.2811(2) 0.01513(15) 0.07397(15) 0.0246(5) Uani 1 1 d . . .
C21 C 0.4593(3) -0.42388(17) 0.40159(15) 0.0305(6) Uani 1 1 d .
C22' C 0.3287(3) 0.05551(16) -0.00524(16) 0.0293(6) Uani 1 1 d . . .
H22' H 0.2934 0.0461 -0.0474 0.035 Uiso 1 1 calc R .
C22 C 0.4565(3) -0.37767(19) 0.45514(17) 0.0388(7) Uani 1 1 d . .
H22 H 0.3862 -0.3815 0.4984 0.047 Uiso 1 1 calc R .
C23' C 0.4281(3) 0.10964(17) -0.02237(16) 0.0323(6) Uani 1 1 d . .
H23' H 0.4616 0.1378 -0.0763 0.039 Uiso 1 1 calc R .
C23 C 0.5572(3) -0.3260(2) 0.44501(18) 0.0434(8) Uani 1 1 d . .
H23 H 0.5577 -0.2951 0.4819 0.052 Uiso 1 1 calc R . .
C24' C 0.4781(3) 0.12210(17) 0.04010(17) 0.0320(6) Uani 1 1 d . .
H24' H 0.5468 0.1586 0.0297 0.038 Uiso 1 1 calc R . .
C24 C 0.6570(3) -0.31982(19) 0.38048(19) 0.0403(7) Uani 1 1 d . . .
H24 H 0.7264 -0.2843 0.3723 0.048 Uiso 1 1 calc R . .
C25' C 0.4268(3) 0.08066(16) 0.11766(16) 0.0295(6) Uani 1 1 d . . .
H25' H 0.4613 0.0896 0.1603 0.035 Uiso 1 1 calc R . .
C25 C 0.6544(3) -0.36630(17) 0.32783(17) 0.0327(6) Uani 1 1 d . . .
H25 H 0.7225 -0.3614 0.2832 0.039 Uiso 1 1 calc R . .
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0.00095(14)
Co2 0.02461(18) 0.02180(18) 0.01739(17) -0.00460(13) -0.00023(13)
0.00312(13)
Cll 0.0478(5) 0.0352(4) 0.0589(5) -0.0156(4) 0.0019(4) -0.0092(3)
C12 \ 0.0382(4) \ 0.0322(4) \ 0.0405(4) \ -0.0039(3) \ -0.0057(3) \ -0.0010(3)
C13 \quad 0.0444(4) \quad 0.0493(5) \quad 0.0304(4) \quad -0.0061(3) \quad -0.0043(3) \quad 0.0066(3)
C14 \ 0.0393(4) \ 0.0420(4) \ 0.0377(4) \ -0.0181(3) \ -0.0094(3) \ 0.0030(3)
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012 0.150(3) 0.0675(19) 0.0501(17) -0.0005(14) -0.0371(19) -0.037(2)
013 0.0750(18) 0.0591(16) 0.0767(19) -0.0378(15) 0.0083(15) -0.0186(14)
014 0.126(3) 0.089(2) 0.0461(16) -0.0376(16) -0.0055(17) 0.001(2)
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022 0.0468(14) 0.0398(14) 0.118(2) -0.0254(15) 0.0169(15) -0.0034(11)
023 0.0454(17) 0.131(3) 0.106(3) 0.042(2) -0.0006(17) 0.0041(18)
024 0.0513(14) 0.0578(15) 0.0442(13) -0.0189(11) -0.0034(11) -0.0190(11)
031 0.111(2) 0.0416(15) 0.090(2) -0.0263(15) 0.0474(19) -0.0226(15)
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033 0.169(3) 0.0557(17) 0.0393(15) -0.0050(12) -0.0388(18) 0.0068(19)
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N1 0.0269(11) 0.0254(11) 0.0196(10) -0.0061(9) 0.0002(9) 0.0020(9)
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N1' 0.0318(12) 0.0244(11) 0.0223(11) -0.0071(9) -0.0070(9) 0.0022(9)N2 0.0279(11) 0.0214(11) 0.0236(11) -0.0058(9) 0.0025(9) -0.0006(9)N2' 0.0328(12) 0.0314(12) 0.0215(11) -0.0054(9) -0.0055(9) -0.0048(10) N3 0.0235(10) 0.0217(10) 0.0179(10) -0.0038(8) 0.0007(8) -0.0004(8)N3' 0.0295(12) 0.0281(12) 0.0248(11) - 0.0107(9) - 0.0080(9) 0.0028(9) $N4 \ 0.0265(11) \ 0.0262(11) \ 0.0227(11) \ -0.0030(9) \ -0.0012(9) \ 0.0043(9)$ N4' 0.0260(11) 0.0237(11) 0.0231(11) -0.0067(9) -0.0054(9) 0.0012(9)N5 0.0316(12) 0.0282(12) 0.0204(11) -0.0063(9) -0.0072(9) 0.0081(9)N5' 0.0275(11) 0.0221(11) 0.0234(11) -0.0069(9) -0.0041(9) 0.0014(9)C1' 0.0345(15) 0.0272(14) 0.0256(13) - 0.0077(11) - 0.0067(11) 0.0030(12) $\texttt{C1} \ \texttt{0.0333(15)} \ \texttt{0.0324(15)} \ \texttt{0.0261(14)} \ \texttt{-0.0075(11)} \ \texttt{-0.0053(12)} \ \texttt{0.0041(12)}$ C2' 0.0340(15) 0.0362(16) 0.0424(17) -0.0183(13) -0.0093(13) 0.0030(12)C3' 0.029(2) 0.032(2) 0.038(2) -0.0094(16) -0.0127(18) 0.0010(16)C30' 0.025(17) 0.20(4) 0.13(3) -0.14(3) 0.006(18) -0.04(2) $C2 \ 0.0248(14) \ 0.0343(16) \ 0.0296(15) \ -0.0037(12) \ -0.0027(12) \ 0.0036(12)$ $\texttt{C3} \ \texttt{0.0313(16)} \ \texttt{0.0427(18)} \ \texttt{0.0339(16)} \ \texttt{-0.0139(14)} \ \texttt{-0.0037(13)} \ \texttt{0.0038(13)}$ $C30 \ 0.04(6) \ 0.00(4) \ 0.00(4) \ -0.01(3) \ -0.03(4) \ -0.01(3)$ C4' 0.063(2) 0.059(2) 0.071(3) -0.031(2) -0.037(2) 0.0012(19)C5' 0.044(2) 0.057(2) 0.084(3) -0.020(2) -0.034(2) 0.0036(17)C40' 0.063(2) 0.059(2) 0.071(3) -0.031(2) -0.037(2) 0.0012(19) C50' 0.044(2) 0.057(2) 0.084(3) -0.020(2) -0.034(2) 0.0036(17)C4 0.0337(17) 0.059(2) 0.0408(18) -0.0166(16) 0.0038(14) -0.0005(15) C5 0.0299(16) 0.055(2) 0.057(2) -0.0250(17) -0.0073(15) 0.0067(14)C40 0.0337(17) 0.059(2) 0.0408(18) -0.0166(16) 0.0038(14) -0.0005(15) $C50 \ 0.0299(16) \ 0.055(2) \ 0.057(2) \ -0.0250(17) \ -0.0073(15) \ 0.0067(14)$ C6' 0.0421(16) 0.0325(15) 0.0295(14) -0.0041(12) -0.0093(13) -0.0063(13) $C6 \ 0.0322(14) \ 0.0242(13) \ 0.0301(14) \ -0.0059(11) \ 0.0024(12) \ 0.0012(11)$ C7' 0.055(2) 0.0406(17) 0.0314(16) 0.0030(13) -0.0162(15) -0.0168(15) C7 0.0388(16) 0.0255(14) 0.0427(17) -0.0138(13) 0.0064(13) -0.0017(12) C8' 0.0476(19) 0.067(2) 0.0239(15) -0.0033(15) -0.0011(14) -0.0242(17) $\texttt{C8} \ \texttt{0.0465(18)} \ \texttt{0.0356(16)} \ \texttt{0.0382(16)} \ \texttt{-0.0189(13)} \ \texttt{0.0017(14)} \ \texttt{-0.0087(13)}$ C9' 0.0353(16) 0.062(2) 0.0288(15) -0.0119(14) -0.0023(13) -0.0088(15) $\texttt{C9} \ \texttt{0.0365(15)} \ \texttt{0.0342(15)} \ \texttt{0.0321(15)} \ \texttt{-0.0122(12)} \ \texttt{-0.0024(12)} \ \texttt{-0.0043(12)}$ C10' 0.0284(14) 0.0447(17) 0.0243(13) -0.0126(12) -0.0052(11) -0.0038(12) $\texttt{C10} \ \texttt{0.0262(13)} \ \texttt{0.0248(13)} \ \texttt{0.0234(13)} \ \texttt{-0.0066(10)} \ \texttt{0.0010(10)} \ \texttt{-0.0034(10)}$ $\texttt{C11'} \quad 0.0278(14) \quad 0.0443(17) \quad 0.0267(14) \quad -0.0151(12) \quad -0.0071(11) \quad 0.0033(12)$ $\texttt{C11} \quad \texttt{0.0249(13)} \quad \texttt{0.0258(13)} \quad \texttt{0.0209(12)} \quad \texttt{-0.0055(10)} \quad \texttt{0.0003(10)} \quad \texttt{-0.0028(10)}$ $\texttt{C12'} \quad \texttt{0.0370(17)} \quad \texttt{0.060(2)} \quad \texttt{0.0373(17)} \quad \texttt{-0.0256(15)} \quad \texttt{-0.0027(14)} \quad \texttt{0.0060(15)}$ $\texttt{C12} \ \texttt{0.0349(15)} \ \texttt{0.0327(15)} \ \texttt{0.0288(14)} \ -\texttt{0.0085(11)} \ -\texttt{0.0101(12)} \ -\texttt{0.0028(12)}$ C13' 0.0427(18) 0.051(2) 0.056(2) -0.0299(17) -0.0137(16) 0.0187(15) $C13 \ 0.0338(15) \ 0.0324(15) \ 0.0305(14) \ -0.0028(12) \ -0.0104(12) \ 0.0035(12)$ $\texttt{C14'} \quad \texttt{0.0434(17)} \quad \texttt{0.0345(16)} \quad \texttt{0.0501(19)} \quad \texttt{-0.0193(14)} \quad \texttt{-0.0188(15)} \quad \texttt{0.0099(13)}$ $\texttt{C14} \ \texttt{0.0314(14)} \ \texttt{0.0221(13)} \ \texttt{0.0295(14)} \ -\texttt{0.0042(11)} \ -\texttt{0.0030(11)} \ \texttt{0.0029(11)}$ $\texttt{C15'} \quad \texttt{0.0374(15)} \quad \texttt{0.0299(14)} \quad \texttt{0.0294(14)} \quad \texttt{-0.0106(11)} \quad \texttt{-0.0103(12)} \quad \texttt{0.0051(12)}$ C15 0.0292(13) 0.0246(13) 0.0218(12) -0.0071(10) -0.0015(10) -0.0001(10) C16' 0.0339(15) 0.0314(15) 0.0272(14) -0.0041(11) -0.0048(12) -0.0044(12) $C16 \ 0.0333(15) \ 0.0328(15) \ 0.0320(15) \ -0.0041(12) \ 0.0022(12) \ 0.0003(12)$ C17' 0.0363(16) 0.0297(15) 0.0422(17) -0.0050(13) -0.0137(13) -0.0077(12) $C17 \ 0.0340(16) \ 0.0388(17) \ 0.0418(18) \ 0.0018(14) \ 0.0040(14) \ -0.0018(13)$ C18' 0.0404(16) 0.0309(15) 0.0385(16) -0.0114(12) -0.0174(13) -0.0014(12)C18 0.0329(16) 0.055(2) 0.0302(16) 0.0053(14) 0.0076(13) 0.0107(15) C19' 0.0362(15) 0.0332(15) 0.0250(13) -0.0096(11) -0.0087(12) 0.0015(12) $\texttt{C19} \ \texttt{0.0353(16)} \ \texttt{0.0464(18)} \ \texttt{0.0238(14)} \ \texttt{-0.0052(13)} \ \texttt{0.0009(12)} \ \texttt{0.0132(14)}$ C20' 0.0262(13) 0.0226(13) 0.0245(13) - 0.0077(10) - 0.0061(10) 0.0045(10) $\texttt{C20 } 0.0317(14) \ 0.0324(14) \ 0.0210(13) \ -0.0045(11) \ -0.0042(11) \ 0.0131(12)$ $\texttt{C21'} \quad \texttt{0.0274(13)} \quad \texttt{0.0239(13)} \quad \texttt{0.0223(12)} \quad \texttt{-0.0087(10)} \quad \texttt{-0.0039(10)} \quad \texttt{0.0046(10)}$ $\texttt{C21} \ \texttt{0.0369(15)} \ \texttt{0.0307(14)} \ \texttt{0.0198(12)} \ \texttt{-0.0053(11)} \ \texttt{-0.0060(11)} \ \texttt{0.0126(12)}$ C22' 0.0339(15) 0.0297(14) 0.0243(13) - 0.0087(11) - 0.0054(11) 0.0022(12) $\texttt{C22 } 0.0490(18) \ 0.0423(17) \ 0.0248(14) \ -0.0149(13) \ -0.0077(13) \ 0.0168(14)$ C23' 0.0375(16) 0.0301(14) 0.0228(13) - 0.0019(11) - 0.0006(12) 0.0015(12) $\texttt{C23} \ \texttt{0.062(2)} \ \texttt{0.0417(18)} \ \texttt{0.0342(16)} \ \texttt{-0.0205(14)} \ \texttt{-0.0219(15)} \ \texttt{0.0173(16)}$

C24' 0.0305(14) 0.0285(14) 0.0343(15) -0.0069(12) -0.0015(12) -0.0022(11) $\texttt{C24} \hspace{0.1in} 0.0500(18) \hspace{0.1in} 0.0351(16) \hspace{0.1in} 0.0429(17) \hspace{0.1in} -0.0169(13) \hspace{0.1in} -0.0222(15) \hspace{0.1in} 0.0087(14)$ C25' 0.0313(14) 0.0277(14) 0.0305(14) - 0.0083(11) - 0.0085(12) 0.0002(11) $\texttt{C25 } 0.0347(15) \ 0.0321(15) \ 0.0326(15) \ -0.0112(12) \ -0.0091(12) \ 0.0052(12)$ _geom_special_details ; All esds (except the esd in the dihedral angle between two l.s. planes) are estimated using the full covariance matrix. The cell esds are taken into account individually in the estimation of esds in distances, angles and torsion angles; correlations between esds in cell parameters are only used when they are defined by crystal symmetry. An approximate (isotropic) treatment of cell esds is used for estimating esds involving l.s. planes. ; loop_ _geom_bond_atom_site_label_1 _geom_bond_atom_site_label_2 _geom_bond_distance _geom_bond_site_symmetry_2 _geom_bond_publ_flag Col Ol' 1.8920(18) . Col N2' 1.937(2) . Col N3' 1.938(2) . Col N1' 1.942(2) . Col N4' 1.950(2) . Col N5' 1.957(2) . Co2 O1 1.8858(17) . Co2 N3 1.935(2) . Co2 N2 1.943(2) . Co2 N4 1.955(2) . Co2 N5 1.957(2) . Co2 N1 1.957(2) . Cl1 041 1.412(3) . ? Cl1 021 1.417(3) . ? Cl1 011 1.424(3) . ? Cl1 031 1.436(3) . ? Cl2 042 1.417(3) . ? Cl2 032 1.422(2) . ? Cl2 012 1.435(3) . ? Cl2 022 1.453(3) . ? Cl3 023 1.400(3) . ? Cl3 O33 1.433(3) . ? Cl3 O13 1.444(3) . ? Cl3 043 1.450(2) . ? Cl4 034 1.409(3) . ? Cl4 014 1.425(3) . ? Cl4 044 1.446(3) . ? Cl4 024 1.451(2) . ? O1 C1 1.301(3) . O1' C1' 1.304(3) . 02 Cl 1.229(3) . 02' C1' 1.213(3) . N1 C2 1.499(3) . N1' C2' 1.489(3) . N2 C10 1.350(3) . ? N2 C6 1.351(3) . ? N2' C6' 1.343(4) . ?

N2' C10' 1.363(4) . ? N3 C15 1.348(3) . ? N3 C11 1.364(3) . ? N3' C15' 1.351(3) . ? N3' C11' 1.361(3) . ? N4 C16 1.345(4) . ? N4 C20 1.362(3) . ? N4' C16' 1.356(3) . ? N4' C20' 1.360(3) . ? N5 C25 1.351(4) . ? N5 C21 1.370(3) . ? N5' C25' 1.355(3) . ? N5' C21' 1.363(3) . ? Cl' C2' 1.545(4) . C1 C2 1.527(4) . C2' C30' 1.448(19) . C2' C3' 1.482(4) . C3' C5' 1.499(5) . C3' C4' 1.526(5) . C2 C30 1.48(2) . C2 C3 1.505(4) . C3 C5 1.489(4) . C3 C4 1.515(4) . C4' C5' 1.500(5) . C4 C5 1.488(5) . C6' C7' 1.396(4) . ? C6 C7 1.387(4) . ? C7' C8' 1.381(5) . ? C7 C8 1.371(4) . ? C8' C9' 1.389(5) . ? C8 C9 1.387(4) . ? C9' C10' 1.383(4) . ? C9 C10 1.391(4) . ? C10' C11' 1.474(4) . ? C10 C11 1.470(4) . ? C11' C12' 1.393(4) . ? C11 C12 1.383(4) . ? C12' C13' 1.385(5) . ? C12 C13 1.387(4) . ? C13' C14' 1.379(5) . ? C13 C14 1.379(4) . ? C14' C15' 1.381(4) . ? C14 C15 1.381(4) . ? C16' C17' 1.386(4) . ? C16 C17 1.384(4) . ? C17' C18' 1.372(4) . ? C17 C18 1.378(5) . ? C18' C19' 1.401(4) . ? C18 C19 1.388(5) . ? C19' C20' 1.386(4) . ? C19 C20 1.385(4) . ? C20' C21' 1.479(4) . ? C20 C21 1.478(4) . ? C21' C22' 1.388(4) . ? C21 C22 1.391(4) . ? C22' C23' 1.386(4) . ? C22 C23 1.388(5) . ? C23' C24' 1.384(4) . ? C23 C24 1.384(5) . ? C24' C25' 1.379(4) . ? C24 C25 1.391(4) . ?

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Ol' Col N3' 176.41(8) . . ?
N2' Col N3' 83.09(10) . .
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N2' Col N1' 88.15(9) . .
                         ?
N3' Col N1' 91.95(9) . .
                         ?
Ol' Col N4' 88.10(8) . .
                         ?
N2' Col N4' 92.52(9) . .
                         ?
N3' Col N4' 94.18(9) . . ?
N1' Col N4' 173.87(9) . . ?
Ol' Col N5' 88.09(8) . . ?
N2' Col N5' 175.39(9) . . ?
N3' Col N5' 94.92(9) . . ?
N1' Col N5' 96.08(9) . . ?
N4' Col N5' 83.46(9) . .
O1 Co2 N3 176.08(9) . . ?
O1 Co2 N2 93.02(9) . . ?
N3 Co2 N2 83.14(9) . .
O1 Co2 N4 87.73(8) . . ?
N3 Co2 N4 91.69(9) . . ?
N2 Co2 N4 93.51(9) . . ?
O1 Co2 N5 89.04(8) . . ?
N3 Co2 N5 94.74(9) . . ?
N2 Co2 N5 176.05(9) . . ?
N4 Co2 N5 83.20(10) . .
O1 Co2 N1 85.64(8) . .
N3 Co2 N1 94.97(9) . . ?
N2 Co2 N1 87.39(9) . . ?
N4 Co2 N1 173.35(8) . . ?
N5 Co2 N1 96.13(9) . . ?
O41 Cl1 O21 115.3(2) . . ?
O41 Cl1 O11 108.2(2) . . ?
O21 Cl1 O11 106.27(19) . . ?
O41 Cl1 O31 107.93(18) . .
                           ?
O21 Cl1 O31 110.5(2) . . ?
O11 Cl1 O31 108.4(2) . . ?
O42 Cl2 O32 114.09(17) . .
                           ?
O42 Cl2 O12 107.6(2) . . ?
O32 Cl2 O12 108.22(17) . . ?
O42 Cl2 O22 108.08(17) . . ?
O32 Cl2 O22 109.33(15) . .
                           ?
O12 Cl2 O22 109.5(2) . . ?
O23 Cl3 O33 112.0(2) . . ?
O23 Cl3 O13 108.3(2) . . ?
O33 Cl3 O13 107.69(18) . . ?
O23 Cl3 O43 111.37(18) . . ?
O33 Cl3 O43 108.48(17) . . ?
O13 Cl3 O43 108.95(15) . .
                           ?
O34 Cl4 O14 114.2(2) . . ?
O34 Cl4 O44 107.58(19) . . ?
O14 C14 O44 107.00(18) . . ?
O34 C14 O24 108.97(16) . . ?
O14 Cl4 O24 110.93(18) . . ?
O44 Cl4 O24 107.94(15) . . ?
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C1 O1 Co2 116.64(16) . . ? C1' O1' Co1 116.44(17) . . ? C2 N1 Co2 110.68(15) . . ? C2' N1' Col 110.93(16) . . ? C10 N2 C6 118.9(2) . . ? C10 N2 Co2 114.94(17) . . ? C6 N2 Co2 126.15(19) . . ? C6' N2' C10' 119.7(2) . . ? C6' N2' Col 125.6(2) . . ? C10' N2' Col 114.66(18) . . ? C15 N3 C11 119.4(2) . . ? C15 N3 Co2 126.80(18) . . ? C11 N3 Co2 113.70(16) . . ? C15' N3' C11' 119.0(2) . . ? C15' N3' Col 126.17(19) . . ? C11' N3' Col 114.80(18) . . ? C16 N4 C20 118.7(2) . . ? C16 N4 Co2 126.69(19) . . ? C20 N4 Co2 114.48(19) . . ? C16' N4' C20' 118.5(2) . . ? C16' N4' Col 127.56(18) . . ? C20' N4' Col 113.70(17) . . ? C25 N5 C21 118.6(2) . . ? C25 N5 Co2 127.45(19) . . ? C21 N5 Co2 113.85(19) . . ? C25' N5' C21' 118.0(2) . . ? C25' N5' Col 128.37(18) . . ? C21' N5' Col 113.65(17) . . ? 02' Cl' 01' 122.9(3) . . ? 02' Cl' C2' 121.2(2) . . ? Ol' Cl' C2' 115.8(2) . . ? O2 C1 O1 121.3(3) . . ? O2 C1 C2 121.8(2) . . ? O1 C1 C2 116.9(2) . . ? C30' C2' C3' 26.5(18) . . ? C30' C2' N1' 125.7(13) . . ? C3' C2' N1' 111.9(3) . . ? C30' C2' C1' 119.4(16) . . ? C3' C2' C1' 113.4(3) . . ? N1' C2' C1' 108.9(2) . . ? C5' C3' C2' 120.6(4) . . ? C5' C3' C4' 59.4(3) . . ? C2' C3' C4' 118.2(3) . . ? C30 C2 N1 118(3) . . ? C30 C2 C3 42(3) . . ? N1 C2 C3 112.5(2) . . ? C30 C2 C1 133(3) . . ? N1 C2 C1 108.4(2) . . ? C3 C2 C1 112.6(2) . . ? C5 C3 C2 120.1(3) . . ? C5 C3 C4 59.4(2) . . ? C2 C3 C4 118.7(3) . . ? C5' C4' C3' 59.4(2) . . ? C3' C5' C4' 61.2(2) . . ? C5 C4 C3 59.5(2) . . ? C4 C5 C3 61.2(2) . . ? N2' C6' C7' 121.1(3) . . ? N2 C6 C7 122.1(3) . . ? C8' C7' C6' 119.5(3) . . ? C8 C7 C6 119.1(3) . . ? C7' C8' C9' 119.2(3) . . ?

C7 C8 C9 119.3(3) . . ? C10' C9' C8' 119.3(3) . . ? C8 C9 C10 119.4(3) . . ? N2' C10' C9' 121.2(3) . . ? N2' C10' C11' 113.8(2) . . ? C9' C10' C11' 125.0(3) . . ? N2 C10 C9 121.3(2) . . ? N2 C10 C11 113.2(2) . . ? C9 C10 C11 125.5(2) . . ? N3' C11' C12' 121.3(3) . . ? N3' C11' C10' 113.7(2) . . ? C12' C11' C10' 125.0(3) . . ? N3 C11 C12 120.9(2) . . ? N3 C11 C10 114.7(2) . . ? C12 C11 C10 124.4(2) . . ? C13' C12' C11' 118.9(3) . . ? C11 C12 C13 119.3(3) . . ? C14' C13' C12' 119.5(3) . . ? C14 C13 C12 119.5(2) . . ? C13' C14' C15' 119.5(3) . . ? C13 C14 C15 119.2(2) . . ? N3' C15' C14' 121.7(3) . . ? N3 C15 C14 121.7(2) . . ? N4' C16' C17' 122.3(3) . . ? N4 C16 C17 122.2(3) . . ? C18' C17' C16' 119.2(3) . . ? C18 C17 C16 119.2(3) . . ? C17' C18' C19' 119.2(3) . . ? C17 C18 C19 119.3(3) . . ? C20' C19' C18' 119.2(3) . . ? C20 C19 C18 119.1(3) . . ? N4' C20' C19' 121.6(2) . . ? N4' C20' C21' 114.4(2) . . ? C19' C20' C21' 124.0(2) . . ? N4 C20 C19 121.6(3) . . ? N4 C20 C21 114.0(2) . . ? C19 C20 C21 124.5(3) . . ? N5' C21' C22' 121.6(2) . . ? N5' C21' C20' 114.2(2) . . ? C22' C21' C20' 124.2(2) . . ? N5 C21 C22 121.2(3) . . ? N5 C21 C20 114.4(2) . . ? C22 C21 C20 124.4(3) . . ? C23' C22' C21' 119.5(3) . . ? C23 C22 C21 119.6(3) . . ? C24' C23' C22' 119.1(2) . . ? C24 C23 C22 119.2(3) . . ? C25' C24' C23' 119.0(3) . . ? C23 C24 C25 119.1(3) . . ? N5' C25' C24' 122.8(3) . . ? N5 C25 C24 122.2(3) . . ?

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_geom_torsion_site_symmetry_2
_geom_torsion_site_symmetry_3

_geom_torsion_site_symmetry_4 _geom_torsion_publ_flag N3 Co2 O1 C1 104.4(12) . . . ? N2 Co2 O1 C1 92.6(2) . . . ? N4 Co2 O1 C1 -174.0(2) . . . ? N5 Co2 O1 C1 -90.8(2) . . . ? N1 Co2 O1 C1 5.4(2) ? N2' Col Ol' Cl' -98.23(19) . . . ? N3' Col Ol' Cl' -61.2(14) . . . ? N1' Col O1' C1' -10.39(18) . . . ? N4' Col Ol' Cl' 169.37(19) N5' Col Ol' Cl' 85.85(19) . . . ? O1 Co2 N1 C2 -11.24(18) . . . ? N3 Co2 N1 C2 172.65(18) . . . ? N2 Co2 N1 C2 -104.47(18) . . . ? N4 Co2 N1 C2 -6.6(9) . . . ? N5 Co2 N1 C2 77.33(18) . . . ? Ol' Col N1' C2' 13.50(18) . . . ? N2' Col N1' C2' 107.70(19) . . . ? N3' Col N1' C2' -169.29(18) . . . ? N4' Col N1' C2' 11.3(9) ? N5' Col N1' C2' -74.13(19) . . . ? O1 Co2 N2 C10 176.66(18) . . . ? N3 Co2 N2 C10 -2.53(18) . . . ? N4 Co2 N2 C10 88.75(18) . . . ? N5 Co2 N2 C10 55.2(13) . . . ? N1 Co2 N2 C10 -97.86(18) . . . ? O1 Co2 N2 C6 -5.8(2) . . . ? N3 Co2 N2 C6 175.0(2) . . . ? N4 Co2 N2 C6 -93.7(2) . . . ? N5 Co2 N2 C6 -127.2(12) . . . ? N1 Co2 N2 C6 79.6(2) . . . ? Ol' Col N2' C6' -2.3(2) . . . ? N3' Col N2' C6' 179.9(2) . . . ? N1' Col N2' C6' -87.9(2) . . . ? N4' Col N2' C6' 86.0(2) . . . ? N5' Col N2' C6' 115.3(11) . . . ? O1' Co1 N2' C10' 177.53(18) . . . ? N3' Col N2' Cl0' -0.29(18) . . . ? N1' Col N2' Cl0' 91.90(19) . . . ? N4' Col N2' Cl0' -94.20(19) . . . ? N5' Col N2' Cl0' -64.9(12) ? O1 Co2 N3 C15 168.6(11) . . . ? N2 Co2 N3 C15 -179.5(2) . . . ? N4 Co2 N3 C15 87.1(2) . . . ? N5 Co2 N3 C15 3.8(2) . . . ? N1 Co2 N3 C15 -92.8(2) . . . ? O1 Co2 N3 C11 -7.1(13) . . . ? N2 Co2 N3 C11 4.78(17) . . . ? N4 Co2 N3 C11 -88.55(18) . . . ? N5 Co2 N3 C11 -171.87(17) . . . ? N1 Co2 N3 C11 91.54(17) . . . ? Ol' Col N3' C15' 141.9(13) . . . ? N2' Col N3' Cl5' 179.1(2) . . . ? N1' Col N3' C15' 91.2(2) . . . ? N4' Col N3' Cl5' -88.8(2) . . . ? N5' Col N3' Cl5' -5.1(2) . . . ? Ol' Col N3' Cll' -36.3(15) . . . ? N2' Col N3' Cll' 0.93(18) . . . ? N1' Col N3' Cll' -86.97(19) . . . ? N4' Col N3' Cll' 92.97(19) . . . ?

N5' Col N3' Cll' 176.75(18) . . . ? O1 Co2 N4 C16 -89.2(2) . . . ? N3 Co2 N4 C16 86.9(2) . . . ? N2 Co2 N4 C16 3.7(2) . . . ? N5 Co2 N4 C16 -178.5(2) . . . ? N1 Co2 N4 C16 -93.9(8) . . . ? O1 Co2 N4 C20 86.10(18) . . . ? N3 Co2 N4 C20 -97.78(18) . . . ? N2 Co2 N4 C20 178.99(17) . . . ? N5 Co2 N4 C20 -3.20(17) . . . ? N1 Co2 N4 C20 81.5(8) ? Ol' Col N4' C16' 93.3(2) . . . ? N2' Col N4' Cl6' -0.7(2) . . . ? N3' Col N4' C16' -84.0(2) . . . ? N1' Col N4' C16' 95.5(9) . . . ? N5' Col N4' Cl6' -178.4(2) . . . ? Ol' Col N4' C20' -81.12(17) . . . ? N2' Col N4' C20' -175.09(18) N3' Col N4' C20' 101.66(18) . . . ? N1' Col N4' C20' -78.9(9) . . . ? N5' Col N4' C20' 7.18(17) . . . ? O1 Co2 N5 C25 92.3(2) . . . ? N3 Co2 N5 C25 -88.7(2) . . . ? N2 Co2 N5 C25 -146.2(12) . . . ? N4 Co2 N5 C25 -179.9(2) . . . ? N1 Co2 N5 C25 6.8(2) . . . ? O1 Co2 N5 C21 -84.83(17) . . . ? N3 Co2 N5 C21 94.14(17) . . . ? N2 Co2 N5 C21 36.7(13) . . . ? N4 Co2 N5 C21 3.01(17) . . . ? N1 Co2 N5 C21 -170.33(17) . . . ? Ol' Col N5' C25' -95.4(2) . . . ? N2' Col N5' C25' 146.8(11) . . . ? N3' Col N5' C25' 82.6(2) . . . ? N1' Col N5' C25' -9.9(2) . . . ? N4' Col N5' C25' 176.3(2) . . . ? Ol' Col N5' C21' 82.85(17) . . . ? N2' Col N5' C21' -35.0(12) . . . ? N3' Col N5' C21' -99.11(18) . . . ? N1' Col N5' C21' 168.40(17) . . . ? N4' Col N5' C21' -5.45(17) . . . ? Col Ol' Cl' O2' -173.7(2) . . . ? Col Ol' Cl' C2' 4.4(3) . . . ? Co2 O1 C1 O2 -179.0(2) . . . ? Co2 O1 C1 C2 2.0(3) . . . ? Col N1' C2' C30' -166(3) . . . ? Col N1' C2' C3' -140.0(3) . . . ? Col N1' C2' C1' -13.9(3) . . . ? O2' C1' C2' C30' -21(2) . . . ? Ol' Cl' C2' C30' 161(2) . . . ? O2' C1' C2' C3' -50.0(4) . . . ? Ol' Cl' C2' C3' 131.8(3) . . . ? 02' C1' C2' N1' -175.3(3) . . . ? Ol' Cl' C2' N1' 6.6(3) . . . ? C30' C2' C3' C5' -15(3) . . . ? N1' C2' C3' C5' -141.8(3) . . . ? C1' C2' C3' C5' 94.6(4) . . . ? C30' C2' C3' C4' 55(3) . . . ? N1' C2' C3' C4' -72.5(5) . . . ? C1' C2' C3' C4' 163.9(3) . . . ? Co2 N1 C2 C30 -174(3) . . . ?

Co2 N1 C2 C3 139.3(2) . . . ? Co2 N1 C2 C1 14.2(3) . . . ? O2 C1 C2 C3O O(3) ? 01 C1 C2 C30 179(3) . . . ? O2 C1 C2 N1 170.1(3) . . . ? O1 C1 C2 N1 -10.9(3) . . . ? O2 C1 C2 C3 45.0(4) . . . ? 01 C1 C2 C3 -136.0(3) . . . ? C30 C2 C3 C5 35(4) . . . ? N1 C2 C3 C5 142.5(3) . . . ? C1 C2 C3 C5 -94.7(3) . . . ? C30 C2 C3 C4 -35(4) . . . ? N1 C2 C3 C4 73.3(3) . . . ? C1 C2 C3 C4 -163.9(3) . . . ? C2' C3' C4' C5' -110.7(4) . . . ? C2' C3' C5' C4' 106.8(4) . . . ? C2 C3 C4 C5 109.9(3) . . . ? C2 C3 C5 C4 -107.5(3) . . . ? C10' N2' C6' C7' -0.6(4) . . . ? Col N2' C6' C7' 179.1(2) . . . ? C10 N2 C6 C7 -0.4(4) . . . ? Co2 N2 C6 C7 -177.8(2) . . . ? N2' C6' C7' C8' 1.1(4) . . . ? N2 C6 C7 C8 -0.8(4) . . . ? C6' C7' C8' C9' -0.4(5) . . . ? C6 C7 C8 C9 0.6(4) . . . ? C7' C8' C9' C10' -0.6(5) . . . ? C7 C8 C9 C10 0.7(4) . . . ? C6' N2' C10' C9' -0.4(4) . . . ? Col N2' Cl0' C9' 179.8(2) . . . ? C6' N2' C10' C11' 179.5(2) . . . ? Col N2' Cl0' Cl1' -0.3(3) . . . ? C8' C9' C10' N2' 1.1(4) . . . ? C8' C9' C10' C11' -178.8(3) . . . ? C6 N2 C10 C9 1.7(4) . . . ? Co2 N2 C10 C9 179.4(2) . . . ? C6 N2 C10 C11 -177.8(2) . . . ? Co2 N2 C10 C11 -0.1(3) . . . ? C8 C9 C10 N2 -1.9(4) . . . ? C8 C9 C10 C11 177.5(3) . . . ? C15' N3' C11' C12' -0.7(4) . . . ? Col N3' Cll' Cl2' 177.7(2) . . . ? C15' N3' C11' C10' -179.7(2) . . . ? Col N3' Cll' Cl0' -1.3(3) . . . ? N2' C10' C11' N3' 1.1(3) . . . ? C9' C10' C11' N3' -179.0(3) . . . ? N2' C10' C11' C12' -177.9(3) . . . ? C9' C10' C11' C12' 2.0(5) . . . ? C15 N3 C11 C12 -2.0(4) . . . ? Co2 N3 C11 C12 174.0(2) . . . ? C15 N3 C11 C10 177.9(2) . . . ? Co2 N3 C11 C10 -6.1(3) . . . ? N2 C10 C11 N3 4.1(3) . . . ? C9 C10 C11 N3 -175.4(2) . . . ? N2 C10 C11 C12 -176.1(2) . . . ? C9 C10 C11 C12 4.5(4) . . . ? N3' C11' C12' C13' 0.0(4) . . . ? C10' C11' C12' C13' 178.9(3) . . . ? N3 C11 C12 C13 0.4(4) . . . ? C10 C11 C12 C13 -179.5(3) . . . ? C11' C12' C13' C14' 0.6(5) . . . ?

C12' C13' C14' C15' -0.6(5) . . . ? C12 C13 C14 C15 -0.9(4) 2 C11' N3' C15' C14' 0.7(4) . . . ? Col N3' Cl5' Cl4' -177.4(2) . . . ? C13' C14' C15' N3' -0.1(4) . . . ? C11 N3 C15 C14 2.2(4) . . . ? Co2 N3 C15 C14 -173.26(19) . . . ? C13 C14 C15 N3 -0.8(4) . . . ? C20' N4' C16' C17' 1.9(4) . . . ? Col N4' C16' C17' -172.2(2) ? C20 N4 C16 C17 0.9(4) . . . ? Co2 N4 C16 C17 176.0(2) . . . ? N4' C16' C17' C18' 0.1(4) N4 C16 C17 C18 -0.5(4) . . . ? C16' C17' C18' C19' -1.8(4) . . . ? C16 C17 C18 C19 -0.1(4) . . . ? C17' C18' C19' C20' 1.4(4) . . . ? C17 C18 C19 C20 0.3(4) . . . ? C16' N4' C20' C19' -2.4(4) . . . ? Col N4' C20' C19' 172.58(19) ? C16' N4' C20' C21' 177.6(2) . . . ? Col N4' C20' C21' -7.5(3) ? C18' C19' C20' N4' 0.7(4) . . . ? C18' C19' C20' C21' -179.2(2) . . . ? C16 N4 C20 C19 -0.7(4) . . . ? Co2 N4 C20 C19 -176.40(19) . . . ? C16 N4 C20 C21 178.5(2) . . . ? Co2 N4 C20 C21 2.8(3) . . . ? C18 C19 C20 N4 0.1(4) . . . ? C18 C19 C20 C21 -179.0(2) . . . ? C25' N5' C21' C22' -0.7(4) . . . ? Col N5' C21' C22' -179.17(19) . . . ? C25' N5' C21' C20' -178.7(2) . . . ? Col N5' C21' C20' 2.9(3) . . . ? N4' C20' C21' N5' 3.1(3) . . . ? C19' C20' C21' N5' -177.0(2) . . . ? N4' C20' C21' C22' -174.9(2) . . . ? C19' C20' C21' C22' 5.1(4) . . . ? C25 N5 C21 C22 -0.1(4) . . . ? Co2 N5 C21 C22 177.26(19) . . . ? C25 N5 C21 C20 -179.7(2) . . . ? Co2 N5 C21 C20 -2.3(3) . . . ? N4 C20 C21 N5 -0.3(3) . . . ? C19 C20 C21 N5 178.9(2) . . . ? N4 C20 C21 C22 -179.8(2) . . . ? C19 C20 C21 C22 -0.7(4) . . . ? N5' C21' C22' C23' 0.4(4) . . . ? C20' C21' C22' C23' 178.2(2) . . . ? N5 C21 C22 C23 -1.2(4) . . . ? C20 C21 C22 C23 178.3(2) . . . ? C21' C22' C23' C24' 0.2(4) . . . ? C21 C22 C23 C24 1.6(4) . . . ? C22' C23' C24' C25' -0.4(4) . . . ? C22 C23 C24 C25 -0.6(4) . . . ? C21' N5' C25' C24' 0.4(4) . . . ? Col N5' C25' C24' 178.6(2) . . . ? C23' C24' C25' N5' 0.2(4) C21 N5 C25 C24 1.2(4) Co2 N5 C25 C24 -175.8(2) . . . ? C23 C24 C25 N5 -0.8(4) ?

C11 C12 C13 C14 1.1(4) . . . ?