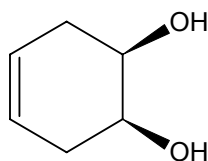
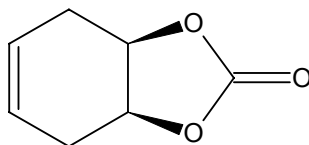


Commercially available reagents were used throughout without further purification unless otherwise stated; solvents were dried using standard procedures. Reactions were routinely carried out under a nitrogen atmosphere. Analytical thin layer chromatography was carried out using aluminum backed plates coated with Merck Kieselgel 60 GF₂₅₄. Plates were visualised under UV light (at 254 and /or 360 nm) and stained with KMnO₄ solution. Flash chromatography was carried out using Merck Kieselgel 60 H silica or Matrix silica 60. Fully characterised compounds were chromatographically homogeneous. ¹H and ¹³C NMR spectra were recorded using Bruker 300 and 400 MHz instruments (¹H frequencies, corresponding ¹³C frequencies are 75 and 100 MHz); *J* values are in Hz. High and low-resolution mass spectra were recorded on a Micromass GCT time of flight high resolution mass spectrometer. Elemental analysis was carried out on a Perkin Elmer 2400 CHN analyser to within ± 0.3% of the theoretical values. Melting points were determined on a Reichert-Kofler hot stage apparatus and are uncorrected.



4-Cyclohexene-*cis*-1,2-diol

To a mixture of *N*-methylmorpholine-*N*-oxide (2.5g, 21.4mmols) in water (6ml), acetone (3ml) and osmium tetroxide (20mg) in *tert*-butanol was added 1,4-Cyclohexdiene (2ml, 21.4mmol). The reaction was maintained at room temperature with a water bath and stirred overnight under nitrogen. To the reaction mixture was added sodium hydrosulfite (1g) and flurosil (8g) in water (20ml) and stirred for 30 min then filtered. The filtrate was neutralized (pH 7) with 1N H₂SO₄, the acetone was evaporated *in vacuo*, the filtrate was then further adjusted to pH 2. The solution was saturated with NaCl and extracted with ethyl acetate (3 x 100ml), the combined organic layers were dried (Na₂SO₄), evaporated *in vacuo* and purified by flash chromatography on silica, eluting with ethyl acetate-hexane (1:1) to afford 4-Cyclohexene-*cis*-1,2-diol (2.05g, 84%) as a colorless crystalline solid mp 70-73°C (from EtOH) (lit., 69-70); (found C, 61.9; H, 8.6; N, 0. calc. for C₆H₁₀O₂, requires C, 63.1; H, 8.8; N, 0 %); δ_H (300MHz; CDCl₃: Me₄Si) 5.51 (m, 2H) 3.88 (dt 2H, *J* 1.15, 4.92) 2.22 (m, 4H); δ_C (75MHz; CDCl₃: Me₄Si) 124.00 (C), 69.29 (C), 31.34 (C); *m/z* [found M⁺ 115.0759. C₆H₁₀O₂ requires 115.1424. C₆H₁₀O₂]



(3aR,7aS)-3a,4,7,7a-tetrahydrobenzo-[1,3]-dioxol-2-one

4-Cyclohexene-cis-1,2-diol (1g, 8.76mmol) was dissolved in 20ml of diethyl carbonate and the mixture was refluxed for 1 h. The reaction mixture was concentrated *in vacuo* and the residue purified by flash chromatography on silica eluting with ethyl acetate-light petroleum (3:1) and crystallized from ether to give (3aR,7aS)-3a,4,7,7a-tetrahydro-1,3-benzodioxol-2-one (1.13g, 92%) as colourless needles mp 53-54°C (found C, 59.91; H, 5.71; N, 0. calc. for C₇H₈O₃, requires C, 59.99; H, 5.75; N, 0 %); δ_{H} (300MHz; CDCl₃: Me₄Si) 6.10 (m, 2H) 5.15 (m, 2H) 2.56 and (q, 4H, J 111.4, 15.1); δ_{C} (75MHz; CDCl₃: Me₄Si) 155 (C), 126.05 (C), 75.11 (C) and 27.37 (C); *m/z* [found M⁺ 141.063 C₇H₈O₃ requires 141.136. C₇H₈O₃].