

Substitution

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|------------------------------|----------------------|---------|-----------|--------|-------|--------|
| Benzylbromid | Toluol | 10.6 mL | NBS | 17.8 g | | |
| 1,2-Bis-(brommethyl)-benzol | <i>o</i> -Xylol | 12.3 mL | NBS | 35.6 g | | |
| 1,4-Bis-(brommethyl)-benzol | <i>p</i> -Xylol | 12.3 mL | NBS | 35.6 g | | |
| 3-Bromcyclohexen | Cyclohexen | 10.1 mL | NBS | 17.8 g | | |
| 1-Bromdodecan | 1-Dodecanol | 18.6 g | HBr (48%) | 23 mL | H2SO4 | 3.2 mL |
| 1-Iod-3-methylbutan | 1-Brom-3-methylbutan | 11.9 mL | NaI | 16.5 g | | |
| 2-Iodpropan | Isopropanol | 7.65 mL | Phosphor | 1.24 g | Iod | 12.9 g |
| <i>o</i> -Methylbenzylbromid | <i>o</i> -Xylol | 12.1 mL | NBS | 17.8 g | | |
| 4-Nitrobenzylbromid | 4-Nitrotoluol | 6.68 g | NBS | 8.9 g | | |

Addition

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| 2-Brom-1,2-Diphenylethanol | <i>trans</i> -Stilben | 2.16 g | NBS | 4.72 g | | |
| β -Bromstyrol | Styrol | 26.2 mL | Brom | 11.4 mL | <i>Styrol vorher destillieren!</i> | |
| <i>trans</i> -1,2-Cyclohexandiol | Cyclohexen | 3.63 mL | Ameisensäure | 21.6 mL | H2O2 (30%) | 3.95 mL |
| <i>meso</i> -Dibrombernsteinsäure | Fumarsäure | 6.55 g | Brom | 2.9 mL | | |
| <i>trans</i> -1,2-Dibromcyclohexan | Cyclohexen | 14.5 mL | Brom | 6.55 mL | | |
| 1,2-Dibrom-1,2-diphenylethan | <i>trans</i> -Stilben | 18.0 g | Brom | 5.12 mL | | |
| 1,2-Dibromhexan | 1-Hexen | 37.6 mL | Brom | 15.4 mL | | |
| 2,3-Dibrom-3-phenylpropionsäure | Zimtsäure | 14.8 g | Brom | 5.2 mL | | |
| 7,7-Dichlor-bicyclo[4.1.0]heptan | Cyclohexen | 10.1 mL | Tri- <i>n</i> -propylamin | 0.17 mL | NaOH | 16 g |
| | Chloroform | 32.7 mL | | | | |

Eliminierung & Diels-Alder

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| Acetylendicarbonsäure (Folgepräparat!!!!) | <i>meso</i> -Dibrombernsteinsäure | 11.3 g | KOH | 15 g | | |
| Bicyclo[2.2.1]hept-5-en-2 <i>endo</i> ,3 <i>exo</i> -dicarbonsäure | Cyclopentadien | 5 mL | Fumarsäure | 6.25 g | Dioxan | 25 mL |
| <i>endo</i> -Bicyclo[2.2.1]hept-2-en-5,6-dicarbonsäureanhydrid | Cyclopentadien | 1.17 mL | Maleinsäureanhydrid | 1.37 g | | |
| <i>cis</i> -9,10-Dihydro-9,10-ethanoanthracen-11,12-dicarbonsäure | Anthracen | 1.43 g | Maleinsäureanhydrid | 789 mg | | |
| Diphenylacetylen (Folgepräparat!!!!) | 1,2-Dibrom-1,2-diphenylethan | 26.9 g | KOH | 37 g | | |
| 1-Hexin (Folgepräparat!!!!) | 1,2-Dibromhexan | 49.4 g | KOH | 57 g | Triglycol | 243 mL |
| 1,4,4a,5,8,8a,9a,10a-Octahydro-1,4,5,6-dimethano-anthracen | Cyclopentadien | 1.39 mL | Benzochinon | 900 mg | | |
| Phenylacetylen (Folgepräparat!!!!) | 1,2-Dibrom-1-phenylethan | 57.4 g | KOH | 60.9 g | Triglycol | 260 mL |
| 1,4,4a,8a-Tetrahydro-1,4-methano-naphthalin-5,8-dion | Cyclopentadien | 1.07 mL | Benzochinon | 1.38 g | | |

Aromatensubstitution

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|--|----------------------------|---------|--------------------------|---------|--------------------------------|--------|
| <i>p</i> -Brom- <i>tert</i> -butylbenzol | <i>tert</i> -Butylbenzol | 20.8 mL | Brom | 6.8 mL | Eisenspäne | 270 mg |
| Brommesitylen | Mesitylen | 33.8 mL | Brom | 12.8 mL | Eisenspäne | 800 mg |
| 2,5-Dibromhydrochinon | Hydrochinon | 4.4 g | Brom | 4.1 mL | Eisessig | 40 mL |
| <i>p</i> -Dimethylaminobenzaldehyd | <i>N,N</i> -Dimethylanilin | 18 mL | DMF | 33 mL | POCl ₃ | 13mL |
| <i>m</i> -Dinitrobenzol | Nitrobenzol | 5.13 mL | HNO ₃ (100 %) | 5 mL | H ₂ SO ₄ | 7 mL |
| 2,4-Dinitrotoluol | <i>p</i> -Nitrotoluol | 3.58 mL | HNO ₃ (100 %) | 5 mL | H ₂ SO ₄ | 7 mL |
| Indol-3-carbaldehyd | Indol | 2.44 g | DMF | 2 mL | POCl ₃ | 2 mL |
| <i>p</i> -Methylacetophenon | Toluol | 22.5 mL | Acetylchlorid | 13.5 mL | AlCl ₃ | 34.1 g |
| <i>m</i> -Nitrobenzaldehyd | Benzaldehyd | 8.95 mL | HNO ₃ (100 %) | 10 mL | H ₂ SO ₄ | 14 mL |
| Nitrobenzol | Benzol | 16.6 mL | HNO ₃ (68 %) | 15 mL | H ₂ SO ₄ | 18 mL |
| Nitroveratrol | Veratrol | 6.37 mL | HNO ₃ (40 %) | 17 mL | | |
| Zimtaldehyd | Styrol | 58 mL | DMF | 117 mL | POCl ₃ | 46 mL |

Reduktion/Oxidation

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|------------------------------|----------------------------|---------|---|---------|--------------------------------|--------|
| Benzoessäure | Toluol | 2.5 mL | KMnO ₄ | 12.3 g | Aliquat 336 | |
| Benzophenon | Benzhydrol | 4.6 g | NaBrO ₃ | 2.6 g | | |
| Benzylalkohol | Benzaldehyd | 20.3 mL | Formalin (37%) | 19.4 mL | KOH | 33.7 g |
| <i>p</i> -Chlorbenzoessäure | <i>p</i> -Chlortoluol | 2.0 mL | KMnO ₄ | 8.96 g | Aliquat 336 | |
| <i>p</i> -Chlorbenzylalkohol | <i>p</i> -Chlorbenzaldehyd | 2.25 g | Formalin (37%) | 1.55 mL | KOH | 2.69 g |
| Cyclohexanon | Cyclohexanol | 15.8 mL | Na ₂ Cr ₂ O ₇ *2H ₂ O | 15 g | H ₂ SO ₄ | 15 mL |
| 1,6-Hexandiol | Adipinsäuredimethylester | 3.44 mL | LAH | 438 mg | | |
| D,L-Isoborneol | D,L-Campher | 2.33 g | LAH | 160 mg | | |
| Menthon | Menthol | 23.4 g | Na ₂ Cr ₂ O ₇ *2H ₂ O | 15 g | H ₂ SO ₄ | 15 mL |
| <i>p</i> -Nitrobenzoessäure | <i>p</i> -Nitrotoluol | 2.41 g | KMnO ₄ | 9.27 g | Aliquat 336 | |
| Pentaerythrit | Paraformaldehyd | 4.53 g | Acetaldehyd | 1.52 mL | CaO | 1.02 g |

Carbonylchemie I

Acetalisierung

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|----------------------------|--------------|---------|-------------------------|---------|-----------------------|
| Acetophenon-diethylacetal | Acetophenon | 12.9 mL | Orthoameisensäuretrieth | 19.1 mL | |
| Benzaldehyd-diethylacetal | Benzaldehyd | 11.8 mL | Orthoameisensäuretrieth | 19.4 mL | Ammoniumnitrat 0.58 g |
| Butyraldehyd-diethylacetal | Butyraldehyd | 16.5 mL | Orthoameisensäuretrieth | 30.3 mL | Ammoniumnitrat 0.91 g |
| Cyclohexanon-diethylacetal | Cyclohexanon | 12.6 mL | Orthoameisensäuretrieth | 20.3 mL | Ammoniumnitrat 0.61 g |

Knoevenagel-Kondensation

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|--|------------------------|---------|--------------------------|---------|
| Benzylidenmalonsäurediethylester | Malonsäurediethylester | 15.3 mL | Benzaldehyd | 10.1 mL |
| Cyclohexylidencyanessigsäureethylester | Cyclohexanon | 13.4 mL | Cyanessigsäureethylester | 13.9 mL |
| Zimtsäure | Malonsäure | 14 g | Benzaldehyd | 13.6 mL |

Mannich-Reaktion

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|--------------------------------------|-------------|---------|--------------------------|--------|------------------------|
| 3-(Dimethylamino)propiofenon*HCl | Acetophenon | 1.28 mL | Dimethylaminhydrochlorid | 0.9 g | Paraformaldehyd 0.51 g |
| 1-Phenyl-3-piperidinopropan-1-on*HCl | Acetophenon | 1.22 mL | Piperidinhydrochlorid | 1.28 g | Paraformaldehyd 0.49 g |

Veresterung

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|---------------------------|-------------|---------|---------------------|-------|-------------|---------|
| Adipinsäurediethylester | Adipinsäure | 8.1 g | p-Toluolsulfonsäure | 0.6 g | Ethanol | 11.4 mL |
| Buttersäureethylester | Buttersäure | 24.3 mL | p-Toluolsulfonsäure | 1.3 g | Ethanol | 27.1 mL |
| Essigsäure-isopropylester | Eisessig | 16.7 mL | p-Toluolsulfonsäure | 1.4 g | Isopropanol | 37.7 mL |
| Essigsäure-n-propylester | Eisessig | 16.7 mL | p-Toluolsulfonsäure | 1.4 g | n-Propanol | 36.8 mL |
| Fumarsäurediethylester | Fumarsäure | 8.7 g | p-Toluolsulfonsäure | 0.4 g | Ethanol | 8.61 mL |
| Glucosepentaacetat | Eisessig | 30.5 mL | Glucose | 6.3 g | NaOAc | 3 g |