

GO-1

Italian (Italian Version)

Istruzioni

-



Periodic Table of Elements

1 H 1.008																	2 He 4.003
3 Li 6.94	4 Be 9.01															9 F 19.00	10 Ne 20.18
11 Na 22.99	12 Mg 24.31															17 Cl 35.45	18 Ar 39.95
19 K 39.10	20 Ca 40.08	21 Sc 44.96	22 Ti 47.87	23 V 50.94	24 Cr 52.00	25 Mn 54.94	26 Fe 55.85	27 Co 58.93	28 Ni 58.69	29 Cu 63.55	30 Zn 65.38	31 Ga 69.72	32 Ge 72.63	33 As 74.92	34 Se 79.90	35 Br 79.90	36 Kr 83.80
37 Rb 85.47	38 Sr 87.62	39 Y 88.91	40 Zr 91.22	41 Nb 92.91	42 Mo 95.95	43 Tc [98]	44 Ru 101.07	45 Rh 102.91	46 Pd 106.42	47 Ag 107.87	48 Cd 112.41	49 In 114.82	50 Sn 118.71	51 Sb 121.76	52 Te 127.60	53 I 126.90	54 Xe 131.29
55 Cs 132.91	56 Ba 137.33	57-71 La 57-71	72 Hf 178.49	73 Ta 180.95	74 W 183.84	75 Re 186.21	76 Os 190.23	77 Ir 192.22	78 Pt 195.08	79 Au 196.97	80 Hg 200.59	81 Tl 204.38	82 Pb 207.2	83 Bi 208.98	84 Po [209]	85 At [210]	86 Rn [212]
87 Fr [223]	88 Ra [226]	89-103 Ac 89-103	104 Rf [261]	105 Db [268]	106 Sg [269]	107 Bh [270]	108 Hs [270]	109 Mt [278]	110 Ds [281]	111 Rg [282]	112 Cn [285]	113 Nh [286]	114 Fl [289]	115 Mc [290]	116 Lv [293]	117 Ts [294]	118 Og [294]
57 La 138.91	58 Ce 140.12	59 Pr 140.91	60 Nd 140.91	61 Pm [145]	62 Sm 150.36	63 Eu 151.96	64 Gd 157.25	65 Tb 158.93	66 Dy 162.50	67 Ho 164.93	68 Er 167.26	69 Tm 168.93	70 Yb 173.05	71 Lu 174.97	72 Hf 178.49	73 Ta 180.95	74 W 183.84
89 Ac [227]	90 Th 232.04	91 Pa 231.04	92 U 238.03	93 Np [237]	94 Pu [244]	95 Am [243]	96 Cm [247]	97 Bk [247]	98 Cf [251]	99 Es [252]	100 Fm [257]	101 Md [258]	102 No [259]	103 Lr [266]	104 Th 232.04	105 Pa 231.04	106 U 238.03

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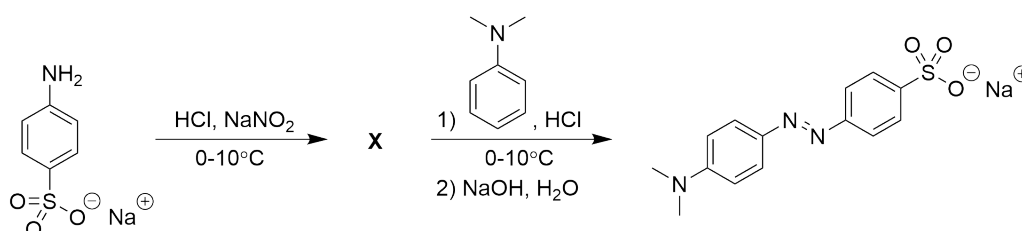
**CHEMISTRY.
OLYMPIAD.CH**
CHEMIE-OLYMPIADE
OLYMPIADES DE CHIMIE
OLIMPIADI DELLA CHIMICA

G0-3

Italian (Italian Version)



Sintesi dell metil arancio (33.0 pt)



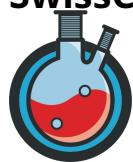
In questo problema, eseguirai una sintesi di un colorante azoico, metil arancio, e analizzerai il prodotto usando TLC. I coloranti azoici sono una classe di coloranti tipicamente preparati usando sostituzione elettrofila aromatica.

Materiali

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|---|--|
| • 1 × 10 mL pipetta a bolla | • 1 × 100 mL pallone |
| • 1 × 400 mL becher per scarti acquosi | • 1 × 50 mL becher |
| • 1 × 50 mL pallone | • 1 × imbuto Buchner |
| • 1 × fiala di vetro | • 1 × bagno freddo |
| • 1 × spatola metallica | • 1 × bagno d'olio |
| • 1 × matita | • 1 × riga |
| • 1 × piastra riscaldante con agitatore | • 1 × bottiglia di aspirazione |
| • 1 × termometro (−10 °C – 250 °C) | • 1 × camera TLC |
| • 1 × lampada UV (condivisa da diverse persone) | • 1 × vetro a orologio |
| • 2 × ancorette | • 3 × piastre TLC |
| • 4 × capillari | • 4 × carte da filtro |
| • 4 × pipette Pasteur | • 4 × fiale TLC |
| • 1 × reflux condenser (already connected to the cooling water) | • 1 × bottiglia di sciacquo con acqua demi |
| cartina tornasole | • 3 × capillari di vetro |

Prodotti chimici

- | | |
|---|---|
| • 10% soluzione soda caustica acquosa (NaOH _(aq)) | • Acqua demi (H ₂ O) |
| • Metanolo (CH ₃ OH) | • Acido sulfanilico (NH ₂ C ₆ H ₄ SO ₃ H) |
| • Carbonato di sodio (Na ₂ CO ₃) | • Nitrito di sodio (NaNO ₂) |



- Soluzione acquosa acido cloridrico (HCl): 3 mol L^{-1} e soluzione 1:6 conc. HCl:acqua
- N,N-Dimetil anilina ($\text{C}_6\text{H}_5\text{N}(\text{CH}_3)_2$) (fornito in un pallone da 100 mL pinzato in un bagno freddo)
- Eluente: 6:1 propan-1-ol ($\text{C}_3\text{H}_7\text{OH}$):28% soluzione ammoniacale ($\text{NH}_3(\text{aq})$)

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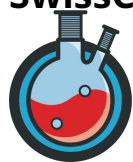


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OLIMPIADI DELLA CHIMICA

P1-3

Italian (Italian Version)

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1.1	1.0 pt
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1.2	5.0 pt
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1.3	2.0 pt
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1.4	1.0 pt
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1.5	1.0 pt
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1.6	2.0 pt
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1.7	1.0 pt
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P2-1

Italian (Italian Version)

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P2-2

Italian (Italian Version)

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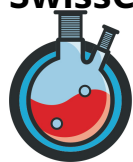
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P2-3

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2.1 3.0 pt

2.2 4.0 pt

2.3 3.0 pt

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P3-1

Italian (Italian Version)

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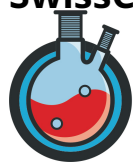
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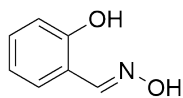
P3-2

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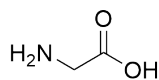


3.1

18.0 pt



Salicylaldoxime



Glycine

3.2

2.0 pt

3.3

2.0 pt