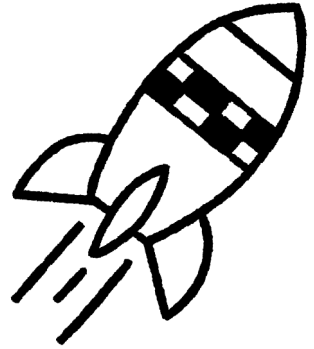


Miisaanka pH iyo milan (solution) tilmaame guud

Sayniska

Cutub: Aashito (acids) iyo saldhigyo (bases)



Natiijo

Waxaan ku qiyaasi karaa pH-ga aashitada (acid) ama alkaliyada (alkali) adigoo isticmaalaya miisaanka pH.

Erayada muhiimka ah

Miisaanka pH

aashito (acidic)

alkali (alkaline)

**milan dhexdhexaad (neutral
solution)**

uruurinta (concentration)

Erayada muhiimka ah

Miisaanka pH waa miisaan ka bilaabma 1 ilaa 14 oo loo isticmaalo in lagu qiyaaso aashitada (acidity) ama alkaliga (alkalinity) ee milannada (solutions). pH7 waxay u taagan tahay milannada dhexdhexaadka (neutral).

Milan (solution) leh pH ka yar 7 waa aashito (acidic).

Milan (solution) leh pH ka badan 7 waa alkali (alkaline).

Milan (solution) leh pH 7 waa dhexdhexaad (neutral).

Uruurinta (concentration) waa xadiga kiimikada ku milan mugga milan (solution).

Miisaanka pH iyo milan (solution) tilmaame guud



Miisaanka pH

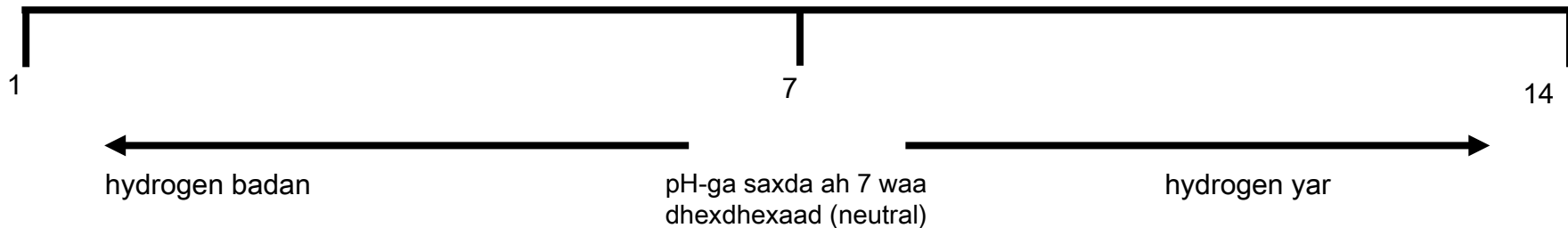


Tilmaame guud (Universal indicator)

pH waxay u taagan tahay 'awoodda hydrogen' (potential of hydrogen).

Miisaanka pH waa miisaan tirooyin ah oo u dhexeeya pH 1 ilaa pH 14.

- Aashitada (Acids) waxay ka kooban tahay hydrogen.
- Marka hydrogen-ka uu sareeyo, pH-ga ayaa hooseeya.
- Marka hydrogen-ka uu hooseeyo, pH-ga ayaa sareeya.



Miisaanka pH-ga (pH scale) wuxuu ka bilaabmaa:

- a** 1-10
- b** 1-100
- c** 1-7
- d** 1-14 ✓

Milan (Solution) leh pH sax ah 7 waa ...

a

aashito (acidic).

b

dhexdhexad (neutral).

c

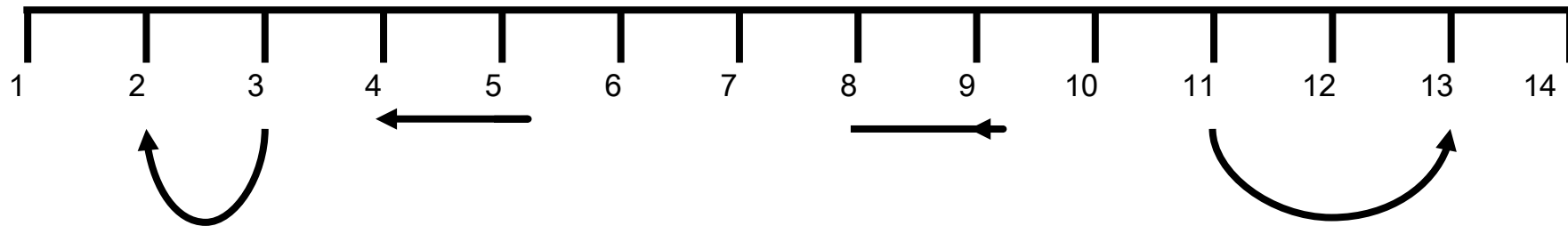
alkali (alkaline).

Marka hydrogen-ka uu sareeyo ...

- a** pH-ga ayaa hooseeya. ✓
- b** pH-ga ayaa sareeya.
- c** hydrogen-ka isku xadka kuma beddelo pH-ga.

Miisaanka pH-ga (pH scale) wuxuu kor iyo hoos u socdaa qaybo toban ah, sidaas darteed aashito (acid) pH 2 ah waxay tahay toban jeer oo aashito (acidic) badan marka loo eego pH 3.

Alkali (alkali) pH 9 ah waxay tahay toban jeer oo alkali (alkaline) badan marka loo eego pH 8.



pH 4 waa 10 jeer oo aashito (acidic) badan marka loo eego pH 5.

pH 13 waa 100 jeer ka alkaline (alkaline) badan pH 11.

Run mise been?

Miisaanka pH wuxuu kor iyo hoos u socdaa qodobbo 14 ah.



Run



Been



Sabab u sheeg jawaabtaada



Milan (solution) pH 5 waa 10 jeer ka acidic (acidic) badan milan (solution) pH 6.



Milan (solution) pH 5 waa 10 jeer ka yar acidic (acidic) marka loo eego milan (solution) pH 6.

Miisaanka pH (pH scale)

Dooro dhammaan weedhaha saxda ah. Marka alkaline (alkaline) badan yahay milan (solution), pH-ga sareeyo, sidaas darteed ...

a pH 9 waa 10 jeer ka alkaline (alkaline) badan pH 8. ✓

b pH 9 waa 14 jeer ka alkaline (alkaline) badan pH 8.

c pH 9 waa 10 jeer ka yar alkaline (alkaline) marka loo eego pH 8.

d pH 11 waa 100 jeer ka alkaline (alkaline) badan ✓ pH 9.

- 1) Sheeg haddii milan (solution) yahay acidic (acidic), neutral (neutral) ama alkaline (alkaline).
 - a) Milan (solution) wuxuu leeyahay pH 5.
 - b) Milan (solution) nadiifin ah wuxuu leeyahay pH 8.
 - c) Biyo (water) waxay leeyihiin pH 7 sax ah.
 - d) Caano waxay leeyihiin pH 6.5.
 - e) Khal wuxuu leeyahay pH 3.
 - f) Milan (solution) furitaanka biyo-mareenka wuxuu leeyahay pH 10.
 - g) Weji-nadiifiye wuxuu leeyahay pH 7.5.

- 1) Sheeg haddii milan (solution) yahay acidic (acidic), neutral (neutral) ama alkaline (alkaline).
 - a) Milan (solution) wuxuu leeyahay pH 5.
 - b) Milan (solution) nadiifin (cleaning) waxay leedahay pH 8.
 - c) Biyo (water) waxay leeyihiin pH 7 sax ah.
 - d) Caano (milk) waxay leeyihiin pH 6.5.
 - e) Khal (vinegar) wuxuu leeyahay pH 3.
 - f) Milan (solution) furitaan biyo-mareen (drain unblocker) wuxuu leeyahay pH 10.
 - g) Nadiifiye weji (facial cleanser) wuxuu leeyahay pH 7.5.

Jawaabaha:

2) Hadallada Yacquub iyo Axmed ma run baa mise been?

Milan (solution) leh pH 2 wuu ka aashito badan yahay (more acidic) milan (solution) leh pH 7.

Milan (solution) A wuxuu leeyahay pH 3, milan (solution) B waa 100 jeer ka aashito badan (acidic). Sidaas darteed, milan (solution) B wuxuu leeyahay pH 2.

Miisaanka pH (pH scale) wuxuu u dhexeeyaa 1-20.

Axmed



pH waxay u taagan tahay 'awooda helium' (potential of helium).



Yacquub

2) Ma run ama been bay yihiin hadalada Yacquub iyo Axmed?

Milan (solution) leh pH 2 wuxuu ka aashito badan yahay milan (solution) leh pH 7.

Milan (solution) A wuxuu leeyahay pH 3, milan (solution) B wuxuu 100 jeer ka badan yahay aashito. Sidaas darteed, milan (solution) B wuxuu leeyahay pH 2.

Miisaanka pH wuxuu u dhexeeyaa 1-20.

Axmed



pH waxay u taagan tahay 'awooda helium'.



Yacquub

3) Six hadalada beenta ah si ay u noqdaan kuwo cilmi ahaan sax ah.

Milan (solution) leh pH 2 wuxuu ka aashito badan yahay milan (solution) leh pH 7.

run

Milan (solution) A wuxuu leeyahay pH 3, milan (solution) B wuxuu 100 jeer ka badan yahay aashito. Sidaas darteed, milan (solution) B wuxuu leeyahay pH 2.

been

Miisaanka pH wuxuu u dhexeeyaa 1-20.

been
(false)

pH waxay u taagan tahay 'awooda helium'.

been
(false)

Axmed

Yacquub

- 3) Sax (Correct)
odhaahyada been (false)
ah si ay u noqdaan kuwa
cilmii ahaan sax ah
(scientifically correct).



Milan (Solution) A waxay leedahay pH 3, milan (solution) B waa 100 jeer aashito badan (more acidic). Sidaas darteed, milan (solution) B waxay leedahay pH 1.

ama

Milan (Solution) A waxay leedahay pH 3, milan (solution) B waa 10 jeer aashito badan (more acidic). Sidaas darteed, milan (solution) B waxay leedahay pH 2.

Axmed

Miisaanka pH (pH scale) wuxuu u dhexeeyaa 1-14.



Yacquub

pH waxay u taagan tahay 'awoodda hydrogen' (potential of hydrogen).

4) Qor pH-ga milanada (solutions).

- a) Milan (Solution) A waxay leedahay pH 3, milan (solution) B waa 10 jeer aashito badan (more acidic). Waa maxay pH-ga milan (solution) B?
- b) Milan (Solution) C waa dhexdhexaad (neutral). Waa maxay pH-ga milan (solution) C?
- c) Milan (Solution) D waxay leedahay pH 8, milan (solution) E waa 1000 jeer alkalin badan (more alkaline). Waa maxay pH-ga milan (solution) E?
- d) Milan (Solution) F waxay leedahay pH 7, milan (solution) G waa 100 jeer aashito badan (more acidic). Waa maxay pH-ga milan (solution) G?

- 4) Qor pH-ga milanada (solutions).
- a) Milan (Solution) A waxay leedahay pH 3, milan (solution) B waa 10 jeer aashito badan (more acidic). Waa maxay pH-ga milan (solution) B?
 - b) Milan (Solution) C waa dhexdhexaad (neutral). Waa maxay pH-ga milan (solution) C?
 - c) Milan (Solution) D waxay leedahay pH 8, milan (solution) E waa 1000 jeer alkalin badan (more alkaline). Waa maxay pH-ga milan (solution) E?
 - d) Milan (Solution) F waxay leedahay pH 7, milan (solution) G waa 100 jeer aashito badan (more acidic). Waa maxay pH-ga milan (solution) G?

Jawaabaha:

pH 2

pH 7

pH 11

pH 5

Qaabka casharka

miisaanka pH (pH scale) iyo milanka indicator-ka guud (universal indicator solution)

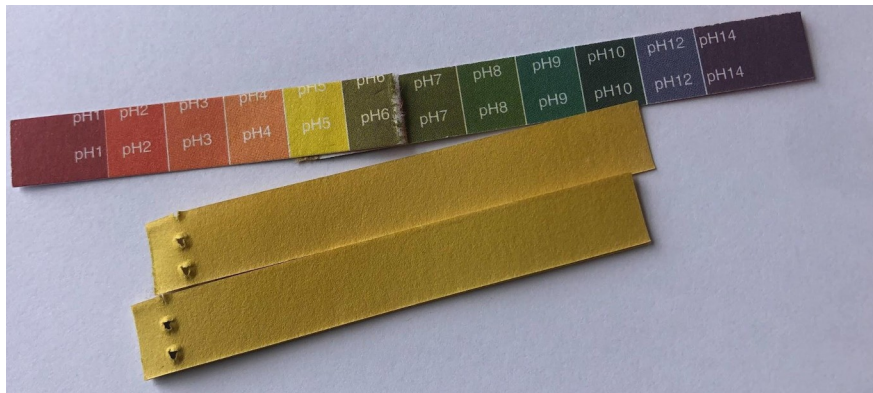


miisaanka pH (pH scale)



indicator-ka guud (Universal indicator)

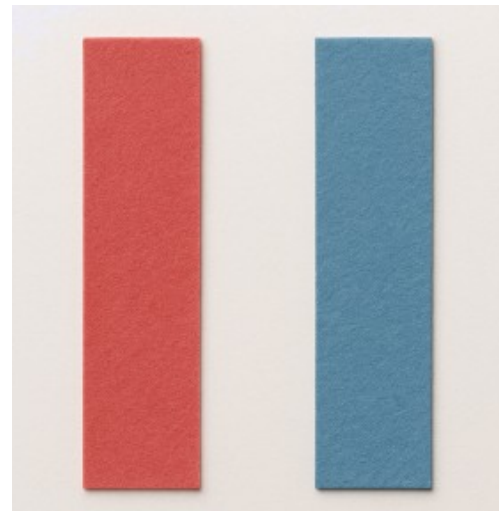
Inta badan asiidhyada (acids) iyo alkaliyada (alkalis) waa milano (solutions) aan midab lahayn, sidaas darteed indicator-ka ayaa loo isticmaali karaa in lagu garto.



waraaqda indicator-ka guud (universal indicator paper)



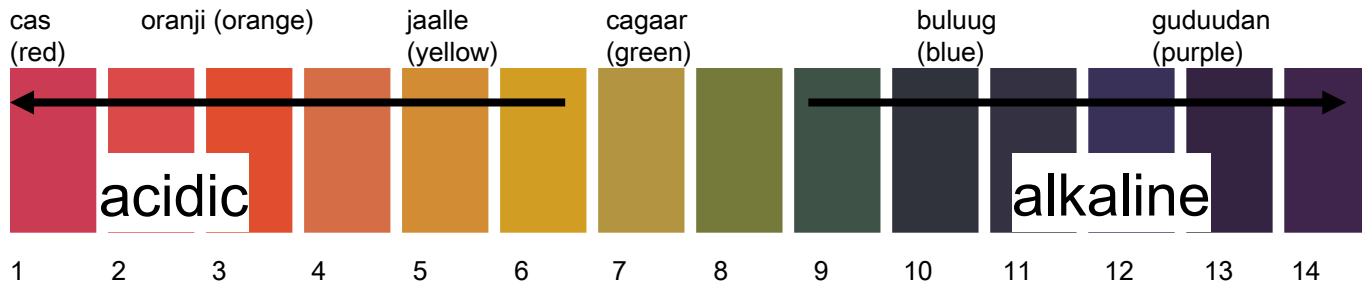
milanka indicator-ka guud (universal indicator solution)



waraaqaha litmus-ka (litmus paper)
ee cas iyo buluug

indicator-ka guud (Universal indicator):

- Wuxuu ku helmi karaa qaab milan (solution) ama waraaq (paper).
- Waxay ka samaysan tahay isku darka midabyo (dyes) oo isu beddeli doona midab kale iyadoo ku xiran pH-ga milanka (solution).
- The paper can be dipped in the solution being tested or drops of the solution form can be added to the solution being tested.
- Si looga hortago wasakhaynta, dhibic ka mid ah milanka la tijaabinayo ayaa lagu dari karaa warqadda.



Universal indicator solution in an acidic solution will be ...

a red / orange / yellow



b green

c blue / purple

Run mise been?

Universal indicator has a wide range of colours in different pH solutions.



Run



Been

Sabab u sheeg jawaabtaada

a Midabka milanka ama warqadda tilmaanta (indicator) ayaa kuu sheegi doona pH-ga milanka aad tijaabinayso.



b Ma kala saari kartid milannada leh pH kala duwan.

Universal indicator

Which is the indicator paper that has been dipped in an indicator pH chart to help you.

alkaline solution? Use the universal

green



a

red

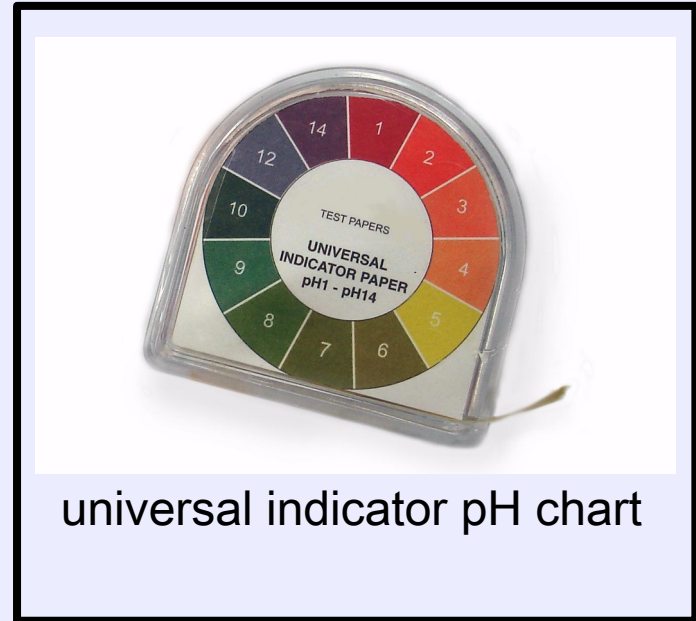


b

dark blue



c



- 1) Samee shax natiiyooyin (results table) tijaabada hoos ku qoran.
- 2) Tijaabi taxane ah milano (solutions) si aad u go'aamiso pH-ga iyadoo la isticmaalayo milan (solution) muuqashada guud (universal indicator) ama warqad.

Habka (Method):

- Adigoo isticmaalaya pipette, ku rid 3-4 dhibco oo milan (solution) tijaabo ah gudaha ceelka saxanka spotting.
- Ama ku dar 1-2 dhibco oo milan (solution) muuqashada guud (universal indicator) ah ama dhig dhamaadka warqadda muuqashada guud (universal indicator paper) gudaha ceel kasta oo saxanka spotting ah.
- Adigoo isticmaalaya jaantuska miisaanka pH, fiiri oo qor midabka iyo pH-ga milanka (solution) gudaha shaxda natiiyooyinkaaga.

1) iyo 2) Shaxda natiijooyinkaadu waxay u ekaan kartaa tan.

magaca milanka (solution)	midabka muuqashada guud (universal indicator)	pH-ga muuqashada (indicator)
liin dhanaan	guduud	2
khal	oranji	3
nadiifiye	buluug madow	11
buuris ilkaha	cagaar madow	9
biyo (water) saafi ah	cagaar khafiif ah	7
cabitaan fizz (fizzy drink)	jaalle	2

3) Qor gunaanad (conclusion) tijaabadaada (experiment) adoo buuxinaya bilowgan weedha:

Milanka (solution) aashinka (acidic) ugu xoogga badnaa ee aan tijaabiyey waa _____, waxaan tan uga ogahay sababtoo ah ...

Milanka (solution) alkaline-ga (alkaline) ugu xoogga badnaa ee aan tijaabiyey waa _____, waxaan tan uga ogahay sababtoo ah ...

Waxaan (tijaabiyey / ma tijaabin) milan (solution) dhexdhexaad (neutral), waxaan tan uga ogahay sababtoo ah ...

3) Gunaanadkaaga (conclusion) waxaa laga yaabaa inuu la mid yahay kan hoose.

Milanka (solution) aashinka (acidic) ugu xoogga badnaa ee aan tijaabiyey waa __ ____, waxaan tan uga ogahay sababtoo ah ...

milan (solution) wuxuu noqday midab cas / wuxuu lahaa pH hoose oo ah 1.

Milanka (solution) alkaline-ga (alkaline) ugu xoogga badnaa ee aan tijaabiyey waa __ ____, waxaan tan uga ogahay sababtoo ah ...

milan (solution) wuxuu ahaa midab guduud / wuxuu lahaa pH sare oo ah 12.

Waxaan tijaabiyey milan (solution) dhexdhexaad (neutral), waxaan tan uga ogahay sababtoo ah ...

milan (solution) wuxuu noqday midab cagaar / wuxuu lahaa pH ah 7.

Ma tijaabin milan (solution) dhexdhexaad (neutral), waxaan tan uga ogahay sababtoo ah ...

milan (solution) kuma noqon midab cagaar / kuma lahayn pH ah 7.

Inta badan aashinka (acids) iyo alkaline-ga (alkalis) waa milan (solutions) aan midab lahayn, marka indheecadaha (indicators) ayaa loo isticmaali karaa in lagu garto.

pH waxay u taagan tahay 'awoodda hydrogen' (potential of hydrogen) iyo aashinka (acids) waxay ka kooban yihiin hydrogen.

Marka uu sareeyo uruurinta (concentration) hydrogen, hooseeyaa pH.

Miisaanka pH wuxuu kor u kacaa oo hoos u dhacaa qodobo toban ah, sidaas darteed aashito pH 2 waa toban jeer aashito badan marka loo eego pH 3.

pH hoose waxaa loola jeedaa aashito, pH sare waxaa loola jeedaa alkaline, iyo milan (solution) leh pH 7 waa dhexdhexaad.