Tables for the detection of simple salts / W. Ivison Macadam.

Contributors

Macadam, W. Ivison Royal College of Physicians of Edinburgh

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TABLES

FOR THE

DETECTION OF SIMPLE SALTS.

Science (including Agriculture), and other Degrees;

W. IVISON MACADAM,

FELLOW OF THE ROYAL SOCIETY OF EDINBURGH,

of Glasgow Fellow OF THE CHEMICAL SOCIETY OF Veterinary

FELLOW OF THE INSTITUTE OF CHEMISTRY, &c. &c. &c.;
-PROFESSOR OF CHEMISTRY, NEW VETERINARY COLLEGE, EDINBURGH;

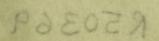
LECTURER ON CHEMISTRY AND AGRICULTURAL CHEMISTRY,
SCHOOL OF MEDICINE, EDINBURGH, &c.

leads to the hope that a further issue will be equally acceptable.

April 1800.

EDINBURGH:

W. F. CLAY, 2 TEVIOT PLACE.



TABLES

FOR THE ROS

DETECTION OF SIMPLE SALTS.

W. IVISON MACADAM,

FRIDE OF THE ROTAL SOCIETY OF FINISHED,

TRILOW OF THE PRETISETE OF CHRISTIRY, &C. SCI. &C.;

PROFESSOR OF CHEMISTRY, NEW VETWINSON COLLEGE, PLINITROSS.

LETTIBES ON CHEMISTRY, NEW VETWINSON COLLEGE, PLINITROSS.

LETTIBES ON CHEMISTRY, NEW SCREENSTRY,

SCHOOL OR MADIENCE, EDISMINGH, &C.

POTURERGIA
W. F. CLAY, P. Truck Piácic

R50369

GROUP I.

Ottassic Oxide: K.O. 1788 Bar

Odic Oxide... Na.O.

Cammonic Oxide., 2(MH2)O. Str.

Ma

Group IV., Dr.

Table Ethic A.

THESE Tables are arranged to suit the Examinations held by the University of Edinburgh for Medical, Science (including Agriculture), and other Degrees; by the Royal Colleges of Physicians and Surgeons of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow; by the Royal College of Veterinary Surgeons, &c. &c.

The success which has attended the first edition leads to the hope that a further issue will be equally acceptable.

April 1890.

dismuthic...
dismuthic...
dadmic.....
hunc.....
llatinic.....
diannous....
itannous...
hrimonious

THESE Tables are arranged to suit the Examinations held by the University of Edinburgh for Medical, Science (including Agriculture), and other Degrees; by the Royal Colleges of Physicians and Surgeons of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow; by the Royal College of Veterinary Surgeons, &c. &c.

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April 1890.

GROUP TESTS FOR METALLIG OXIDES.

Table Eable A.	GROUP IV., DIV. 1.,	Test for	Sodic OxideNa ₂ O. AmmonicOxidez(NH ₄)O.	GROUP I. Potassic OxideK ₂ O.
GROUP IV., DIV. 2, Table D. by Table B.		formed.*	StronticSrO. CalcicCaO. MagnesicMgO.	GROUP II. Baric OxideBaO.
Table C. by Table C.	Test for	FerricFe ₂ O ₃	Chaltons Coo	GROUP III. Aluminic OxideAl ₂ O ₃ .
Test for Fable A. by Table D.	A precipitate.	No prezipitate Add Na HPO	Argentic OxideAg.O. Mercuric (PlumbicPbO. Cupric MercurousHg.O. Bismuthic Cadmic	GROUP IV.
Table B.	AntimoniousSb ₂ O ₃ . ArseniousAs ₂ O ₃ . ArsenicAs ₂ O ₅ .	Market Committee of the	Oxic	GROUP IV.

^{*} If a white or slightly yellow pre is produced, it is due to sulphur precipitated by some reducing substance.

GROUP TESTS FOR METALLIC OXIDES.

out the same of th			
Precipitale Process A coloring	Test for	Скоир IV., Бич. 1.,	Tabby Table A.
	A A Service * Esservoit	Test for	Table D. Phy Table B.
inns 1999	precipi	Test for	CROUP III.
Add NH,CI+NH,HO+NH,HS.	heniette is statigizert eN. OH, HV. + OTH, BbA	shatiqinsiq k	CROUP II.
cd. Group IV.	s is obtained.	As the statistical of the statis	Group I. by Table E.

* If a white or slightly yellow pre, is produced, it is due to sulphut precipitated by some reducing substance.

METALLIC OXIDES. GROUP IV.—Division I.

C2O.

To	
To White	
precipitate o	TICI
obtained with I	uns groen
with HCI	a wenne
HCl+Aq add	in has given a white preapitate.
NH,HO+Aq	

	Ag ₂ O.	E 3 G E 3 G SI SI SI SI SI SI SI SI SI SI SI SI SI	K ₂ Cr ₂ O ₇ = Purple-Red pre.	Pre. is soluble.
Add to 34	me solu w Ki	White for. K1 = Yellow fre.	SnCl ₂ = Grey pre., Bright Cu is silvered.	Pre. becomes darkened.
N.E.	PbO.	KI = Yellow pre.	H ₂ SO ₄ + Aq = White pre.	Pre. is unchanged.

OROUNETALLIO OXIDES. OXIDES.

CROUP IV.—Division I.

To White precipitate obtained with HCI+Aq add MH.HO+Aq. HCl has given a White precipitate.

Pre. ts soluble	Lead for	Chouse III g Day Ju	O.SA T. M. O.
	of two towards a	Total loa	Catoga IV, thre a
of respect of the becomes durbefield between	Bright Cu is situated.		THE TOTAL C
Michael Committee Committe	14,02,H.	=1X	THE WOOM!
r winchenged.	STANDAR S PA TA OS. H.	KI = Isllow pre-	Total for Chock L. Shows and Table E.

" If a white or digital yellow gree is produced, it is due to sulphur precipitated by some reflicing substance.

Table B.

METALLIC OXIDES.

GROUP IV.—Division II.

HCl+H2S have given a precipitate.

			Pre. is Yellow.	Pre.		Pre. is Orange-Red. Zn and H ₂ SO ₄ = Black pre.	Pre. is Brown. HgCl _s = White		Pre. is		
		Soluble. AgNO _S Na		Insoluble. NaHO = White pre.		and SbH, with garlic odour.	garlic odour. pre. White pre. No pr KI = Yellow Add Na	Add NaHO.		XI = Yellow Add NaHO.	
Yellow pre.	op NH ₄ HO e solution. Ruddy- Brown pre. CuSO ₄ + O NH ₄ HO = Blue	CuSO ₄ = Light Green pre.	Ruddy Brown pre. CuSO;= Blue- Green pre.	Soluble. in excess of NaHO.	Insoluble. in excess of NaHO.			pre.	White pre. H ₃ O in great excess = White pre.	Yellow pre. SnCl ₂ = White or Grey pre. Bright Cu silvered.	Blue pre. NH4HO BlueGreenpre. soluble to Azure-blue solution. K4FeCy6 Ruddy pre.
Green pro	As ₂ O ₅ (Test for Acids.)	(As ₂ O ₃) H ₃ AsO ₃ In combination as an Arsenite. Test for Group I. Oxides.	(As ₂ O ₅) H ₃ AsO ₄ In combination as an Arsenate. Test for Group I. Oxides.	SnO _g .	CdO.	Sb ₂ O ₃ .	SnO.	PbO.	Bi ₂ O ₃ ,	HgO.	CuO.

Table B.

METALLIC OXIDES.

GROUP IV.-Division II.

HCl + H,S have given a precipitate.

_	-					
200	e Pre.	of Aq to the	H.H.N.		P. 12	
100	&luhle,	and SbI		Whise Gr Gr Soluble.		
7007 T1007	ore swallo			AgNO ₃ .		
H _a HO Greenpre. luble to mre-blue olution.		pre. 10	Light C		pre. NH,HO solution. Ruddy- Brown	Add drop
FeCy6				0.428.00	Greenpre.	NH_4HO = Light Greenpre.
CuO.	.OnS CdO.	(As_2O_5) H_aAsO_4		OnZ(As ₂ O ₃ O ₅	As ₂ O ₅ -	As _o O ₃
		combination as an area Test for Froup I. Oxides.	n as an In	In combination Arsenite. T Group I. Ox	(Test for Acids.)	(Test for Acids.)

Table C.

METALLIC OXIDES.

GROUP III.

NH₄Cl + NH₄HO + NH₄HS have given a precipitate.

Pre. is NOT Black. Add NaHO to original solution.						s <i>Black</i> . Cl + Aq in excess.	
Add NaHO in e	excess to this pre., ng solution into 2.	Blue Green pre. Sol. in excess.	Flesh-coloured pre.	Pre. in			roluble. HO.
White pre. NH ₄ HO = White pre. Insol. in excess.	No pre. (2) Add H ₃ S = White pre. NH ₄ HO = White pre. Sol. in excess.		NaHCO, bead is Green.	Yellow-Green pre. Sol. in +.	Brown pre. Sol. in +.	Green pre, K ₄ FeCy ₆ = Light-Blue pre.	Brown pre. K ₄ FeCy ₆ = Dark-Blue pre.
Al ₂ O ₃ .	ZnO.	Cr _o O ₃ .	MnO.	NiO.	CoO.	FeO,	Fe _s O _s ,

Table C.

METALLIC OXIDES. GROUP III.

HVI- NH, HO + NH, HS have given a precipitate.

	NOT Black.	Pre. is	5.13		
- 43	original soluti	dd NaHO to	A	108 26 To	
	has Blue Gree	coloured	te pre.	Whi	
the pre				Add NaHO in e	
OH,H	Sol. in exec	CO ₃ bead		nd divide resulti	Add drop
guide to sure-blue	0000	THE RESERVE AND ADDRESS OF THE PARTY OF THE	Yellor	w-Green B	
vireigen.	122	Vo pre.	Sol	White pre.	Vellowo pre.
si Pecy,		$hdd H_aS = hite pre.$	Control of the Contro	$NH_4HO = White pre.$ nsol. in excess.	CuSO. + I
		H ₄ HO = hite pre.		Cossis III III	NH,HO
		in excess.	Sol.	6	Green pro. 6
CuO.	A Cr ₂ O ₃ .	ZnOOnl	1	Al ₂ O ₃ . Oil	As.O,

METALLIC OXIDES. GROUP II.

Na₂HPO₄ + NH₄HO have given a white precipitate.

To original solution add NH₄Cl + NH₄HO + 2(NH₄)CO₃.

* NH,HO+z(NH,)O BaO.	K2CrO4 = Yellow pre. Flame is Yellow-Green.	CaSO ₄ = White pre. at	Pre is Pulsierent Rapidly.		(hartshern)	Outros of Amendratic
* NH, HO + a(NH, KO), leave no residue on evaporation, but the solutions are alkaline and have BaO. Sro. ecloue of Jonnania. CaO. MgO.	K ₂ CrO ₄ = slowly a Yellow pre. (Comes rapidly on boiling.) Flame is Crimson	CaSO ₄ = White pre. slowly.	bidly.	which comes	H ₂ SO ₄ + Aq = White pre.	White pre.
Sro. oclour of Ammonia. Cao.	z(NH ₄)C ₂ O ₄ = White Pre. insol. in HC ₂ H ₃ O ₂ .	$K_2CrO_4 = no pre.$	Slowly.		Thy Flance Teat.	Something the secondary of the control of
alkalias and have MgO.	TADO	*unificial de Balgar.	Lagrid is any and to east	NaHO or KHO = White pre. soluble in	H ₂ SO ₄ = no pre.	No pre.

METALLIC OXIDES.
CROUP II.

To original solution add NH,CI+NH,HO+2(NH,)CO3. Na, HPO, + MH, HO have given a subite precipitate.

CTA.	LLIO GRADO	Kat Xat	Pre. is Pulrerent.	CaSO, = White pre. at	K,CrO, = Yellow pre.	Timing is Tenous-Creen.	ВаО.
White pre.	H ₂ SO ₄ + Aq = White pre.	Rapidly.	Pre. is Crystalline.	CaSO4 = White pre. slowed.	K,CrO, = slovely a Vellow pre. (Comes rapidly on boiling.)	Flame is Crimson.	.O.z
Na.H	pre. 1 H,S = 1 H,S = 1 O- 1 Pre.	Slowly.	Caso, = no pre.	K'CLO' = no bas.	Pre. insol. in HC, H,O.	Flame is Vellow-Red.	CaO.
No pre.	H ₂ SO ₄ = no pre. NaHO or KHO =				OJA.		MgO.

METALLIC OXIDES. GROUP I.

The Group tests have been negative.

To original solution add NaHO and heat.

2(NH ₄)O.	test papers.	Vapour is Alkaline to	of Ammonia rtshorn)
ME TE K.O. Polassium Sodium Greek - B.	H ₂ C ₄ H ₄ O ₆ = White pre. on stirring.	Plane Flowe Flowe Wiolet. Middle Resource	
Stranthus (Na20) Borack	2	Yellone, wer Reducin Flame.	No odour of Ammonia is given off. Try Flame Test.
(Note.—If liquid is acid to test papers, test for free acid.) H ₂ O.	Liquid is neutral to test papers. No residue on evaporation.*	No coloured flame, or very slightly Yellow.	of.

^{*} NH₄HO+2(NH₄)CO₃ leave no residue on evaporation, but the solutions are alkaline and have the odour of Ammonia.

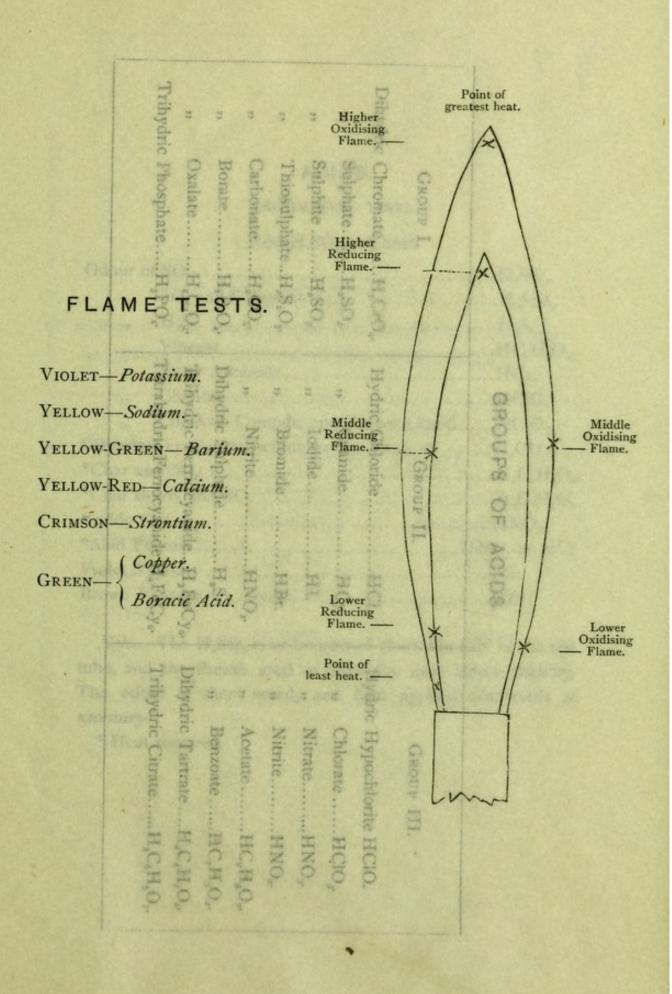
METALLIO OXIDES.

The Group tests have been negative, contain

To original solution add NaHO and beat. Il

Stoper . Be	No odour of Ammonia is given of.	o of A sequential	Dironnak to ranho
H,30, no pre.	Тту Flame Test.	HIZO + PA - HANNING	(патероги)
WHO STATE OH W.	Yellore.	which comes Violet.	
very slightly Vellow.	A STATE OF THE PARTY OF THE PAR	Millian	ine to
Liquid is neutral to test	H"C"H"O"=	H3C4H40e=	test papers.
babers.	no pre. on stirring.		And the same of the same
We residue on evaporation.*	K'C+O' - ma bas	Callo, " White pre absolute	Caso, - White per at
(Mote.—If liquid is soid to test papers, test for free soid.)	William CO. HANG	K,CrO, - storedy a Valley	E CHO - Estlowe how
н.о.	Na.O.	(Country Ka	2(ИНД)О
	The State State of second State	Manage of Contract	TOTAL TOTAL TOTAL OF THE PARTY

* NH, HO + 2(NH,)CO3 leave no residue on evaporation, but the solutions are alkaline and have sthe odour of Ammonia. MAG



GROUPS OF ACIDS.

Trihydric PhosphateH,PO.	" OxalateH ₂ C ₂ O ₄ .	" BorateH,B,O,	" CarbonateH,CO,	" ThiosulphateH,S,O,	" SulphiteH,SO,	" SulphateH ₂ SO ₄ .	Dihydric ChromateH2CrO4.	GROUP I.	H,SO, H,S,O, H,S.
Tetrahydric Ferrocyanide H, FeCy.	Trihydric FerridcyanideH, FeCy.	Dihydric SulphideH ₂ S.	" NitriteHNO,	" BromideHBr.	" IodideHI.	" CyanideHCy.	Hydric ChlorideHCl.	GROUP II.	GROUPS OF ACIDS.
Tribydric CitrateH ₃ C ₆ H ₅ O ₇ .	Dihydric Tartrate H2C,H,O6.	" BenzoateHC,H,O,	AcetateHC,H,O,	NitriteHNO2.	NitrateHNO3	,, ChlorateHClO ₃ .	Hydric Hypochlorite HClO.	GROUP III.	ofore shaking.

Od

08 *C

*C Ru

V10 Bro

tub

The nece

GROUPS OF ACIDS.

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Losses Ordeless — Electer

	Dibydrio	lsi s Juleo mel le	E	ε	t	t	E	Tribydri	
Скопь Г	Dibydric ChromateH,CrO,	Sulphate	Sulphite H,503.	Thiosalphate H., S.O.,	CarbonateH,CO3.	BorateH,B,O,	OxalateH,C,O,.	Trilnydric Phosphate H3PO,	M
Скопр II.	Hydric ChlorideHCl	" CyanideHCy	" lodideHI.	Bromide	" ИіцінеНИО,	Dihydric Sulphide	Trihydric FerridcyanideH3FeCy.	Tetrabydric Ferrocyanide H, FeCy.	12 - 23 - 24 - 25 - 25 - 25 - 25 - 25 - 25 - 25
Скопр III.	Hydric Hypochlorite HClO.	Chlorate HClO3.	" NitrateHNO,	" MitriteNO.,	" AcetateHC,H,O,"	" Benzoate HC, H, O.	Dibydric Tarrate H,C,H,O.	Tribydric CittateH3C6H4O,	

-7530BF

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CRISTON

ACIDS.

PRELIMINARY TESTS.

Add H₂SO₄ and heat.

Odour of	SO ₂	H ₂ SO ₃ .
"	SO ₂ and S deposited	H ₂ S ₂ O ₃ .
solution is	H.S., man memurise with with the	H,S.
	Vinegar	
"	Bitter Almonds	НСу.
,,	Chlorine	HClO.
,,	Chlorous Compds. and Yellow Liquid.	HClO ₃ .
Odourless	or slightly Acidulous Gas given off	H ₂ CO ₃ .
*Char and	d SO ₂	H2C4H4O6.
*Char slo	wly and SO ₂	H ₃ C ₆ H ₅ O ₇ .
Ruddy G:	as Precapitate	HNO.
*Acid Fu	mes	HNO, or HCl.
Violet Va	pours	НІ.
	apours Grown II	

Note.—The H₂SO₄ is to be poured down the side of the test tube, and the thumb used to close the tube before shaking. The odour is then noted, and heat applied afterwards if necessary.

^{*} Heat required.

ACIDS.

PRELIMINARY TESTS.

Add H.SO, and heat.

H,503.	Odour of SO,
	" SO, and S deposited
H ₂ S,	" -H,SO . C . C . C . C . C . C . C . C . C .
HC,H,O,.	" Vinegar
НСу.	" Bitter Almonds
HCIO.	" Chlorine
HCIO3.	" Chlorous Compds. and Yellow Liquid
H. CO.	Odourless or slightly Acidulous Gas given off
H.C,H,O.	*Char and SO,
H3C6H5O7.	*Char slowly and SO,
HNO,	Ruddy Gas
	*Acid Fumes
.IH	Violet Vapours
HBr.	Brown Vapours

Note.—The H₂SO₄ is to be poured down the side of the test tube, and the thumb used to close the tube before shaking. The odour is then noted, and heat applied afterwards if necessary.

^{*} Heat required.

ACIDS.

GROUP TESTS.

To Neutral solution add BaCl₂.

(If solution is Acid, first neutralise with NH₄HO and filter from any precipitate formed, then to clear filtrate add BaCl2.)

Precipi	tate.	A STATE OF S	recipitate. O ₃ + AgNO ₃ .
Test (Precipitate. Test for	No precipitate. Test for
by Ta		GROUP II. by Table	GROUP III. by Table
St for		G. 3	н.

ACIDS.

ACIDS.

.H.80.

GROUP TESTS.

Odom of To Neutral solution add BaCl.

(If solution is Acid, first neutralise with NH, HO and filter from any precipitate formed, then to clear filtrate add BaCl.)

dpitate. B.CO., B.CO., a+AgNO.	Add HNO	Precipitate. or
the many	Precipitate. Test for	Test for
GROUP III.	GROUP II.	GROUP I. by Table
the tobe Hore shaking at applied alterwards of	thuch unch to close	adv bus isdet

* Hear required.

Table Table F.

ACIDS—GROUP I.

BaCl, has given a Precipitate.

	五 分			
н,	o.		Purple red p	Yello
H,CrO, ho H,SO, H,SO, H,SO, H,CO,	H,FeCy _o		Purple red pre. No odour.	10
no He	Cy.		No odo	100
SO.	H,FeCy.		søl. odour.	Count time
H. H.	9.	SO ₂ liquid Zn+1	Odo	
3O ₃ .	HC.	SO ₂ and SO ₂ and sligh liquid clear S pre. Zn+H ₂ SO ₄ Fe ₂ Cl ₆ = = H S cas burble colour	Soluble or Odour of	Ad
H.S	To Per	SO ₂ S ₁ Fe ₂ C	or with odour. or of Odour of No	White pre. Add HCl + Aq to pre., and note odour, if any.
Os-pur	HNO.	SO ₂ and S pre. Fe ₂ Cl ₆ =	efferve odour.	+ Aq to
H.C		.2.	Scence No B	White pre.
Ostalo	HI	acid.	No Man	pre. and note
100	HIL Junes, Bron	**	Soluble WIT	te odou
O gener	HB	1 5.5	heat heat	r, if an
H.PO. H.B.O.	Acose	HCI	Soluble WITHOUT effervesa Add AgNO ₃ . Yellow Pre. Whi	dour, if any.
204	And and of other	+ Turmeric and dry.	NO3.	
H,C,O,.*	CaCl ₂ = white pre. insol. in HC ₂ H ₃ O ₂ .	HCl+Turmeric Paper and dry.	Soluble WITHOUT effervescence or odour, each of the Add AgNO3. Note that Add AgNO3. Yellow Pre. White pre. CoanO.	
**	pre. in 30°.	per	Littmus Paper. Cos NO	Chiovine odour.
2	*	The state of	o ras	ine

^{*}Cyanides always contain Oxalates; if, therefore, H2C2O4 be found, test for HCy by Table G.

ACIDS-GROUP I.

BaCl, has given a Precipitate.

Fellow pre.	AgNO ₃ = Purple red pre.				H°C10°
	No odour.	ACTOR COSP TEST	A CORR		H2504.
and filte	NHS IO	odour of and Os and dear	O2,H+nS 2,H=	To a is Acid, recipente	Soos H soos
d HCI+Ag to	Soluble with effertiescence	or mobo	-H.S.gar. purple colour.	hinte	.0,2,Н
White pre.	NA SOUNDS	Mo odour or skightly acid.	A	201 c.	H*603.
Add HCl+Aq to pre, and note odour, if any.	TTIW sldwlo2	Yellogu Pre.	d see to	l'able	H3PO.
oà.	ruobe to sursessiviste ruohitiw sldulo2.	HCI+Tun and	Ross Tint.	Andrea Property	H'B'O'
	nes or odour.	HCI+Turmeric Paper and dry.	this scor off.	CaCl ₂ = CaCl ₂ = white pre. HC ₂ H ₃ O ₂ .	H°C°O*.*

* Cyanides always contain Oxalates; if, therefore, H,C,O, be found, test for HCy by Table G.

ACIDS-GROUP II.

ACIDS-GROUP III.

HNO₃ + AgNO₃ have given a precipitate.

H ₂ S.	841	ra.	Pb2C,H3O2= black pre.	Black pre.
H ₃ FeCy ₆ .			FeSO ₄ = blue pre.	Orange red
H,FeCy,.		+ H.SO., decoloration	Fe ₂ Cl ₆ = blue pre.	Green tint.
нсу.		H.SO. = odour of gunde.	Blue colour or pre.	Odour of Vinega FeS
HNO _z .	+ H ₂ SO ₄ = blue colour.	Red fumes.	Sulphindship	Win O ₄ +Fe ₂ Cl ₆ +1
HI.	Violet fumes.	D.	No blue colour or pre. H ₂ SO ₄ and heat.	White or Yellow pre + Fe ₂ Cl ₆ + NaHO + HCl to
HBr. HCl.	Violet fumes. Brown fumes	No red fumes. MnO ₂ + H ₂ SO ₄	ur or pre.	acid
and odour of chlorine. HCl.	Colourless fumes	sidue.	Evoporate to dry	No acid funds
HClo.*	test papers.	black pre	Gas bleaches Litmus Paper.	Chlorine odour.

^{*} HClO gives no pre. with HNO₃ and AgNO₃ when pure, but as chlorides are generally present, a white pre.

ACIDS-GROUP II. ACIDS GROUP I.

HNO3+ AgNO3 have given a precipitate.

Black pre. Orange pre.	Phack pre. blue pre.			H,5. H,FeCys.
Orange red Green tint.	pine pre	tools burgil he		Cy. H,FeCy.
FeSO,	s colo		1	нс»
FeSO, + Fe ₂ Cl _e + NaHO + HCl to acid reaction.		S. Red Junes.		нио-
Vellone pre.	No blue colour or pre. H. 80, and heat.	Wo red firmes.	Jumes. Brosen.	нг нвг
HCl to acid reaction.	Se Alifine also		Violet Jumes. Brosen Jumes Colonaless Jumes Chames Colonaless and odour an of chloring of m	
Chlorine odour. Gas bleaches	Litmus Paper.	black pre.	ries C.C. and down the property of the Control of the property	HCI HCH HCIO*

* HClO gives no pre. with HNO₃ and AgNO₃ when pure, but as chlorides are generally present, a white pre-is usually obtained.

* Cyanides always commis Ovalates: If therefore, H.C.O. be found, test for HCy by Table C.

ACIDS-GROUP III.

No Group Test has been obtained.

Add H₂SO₄, mix well and heat.

"ONH	OOM	MIMO	NC	SA	LT	s.	# F	= blue colour.	KI & starch	Ruddy coloured fumes.
нсю.	V Feb.	V Fe D.	₹ RaO.	O-S	Na Cach				Gas bleaches	
H,ClO3.	W	W	A	A	AAA	1	decoloration	S		Yellow gas with Chlorous
HC,H,O,.	AW	A W	A	AW	AAAA	wine.	H ₂ SO ₄ =	C,H,0+	Fe ₂ Cl ₆ = red colour.	Odour of Vinegar.
HNO,	W		À	A	A		+ H ₂ SO ₄ =	Sulphindylic Acid	= red gas.	Acid Fumes.
HC,H ₅ O ₂					XE	W	W W	W	Buff pre.	H,FeCy, H,FeCy, HClO
H₂C₁H₄O₀.	reaction = white pre.	CaO + Aq to Alkaline	burned sugar.	Odour of	W W W	Heat, res	· · · · · · · · · · · · · · · · · · ·	24 25	W	HCIO,
H ₃ C ₆ H ₅ O ₇ .	no pre. till after boiling.	to Alkaline reaction =	CaO + Aq	Acid odour.	A	Heat, residue chars.	Residue	Evaporate to dryness	No pre.	No acid fumes. Fe ₂ Cl ₆
Н,0.	ir eri	No. of	- A	test papers.	neutral to	Tro resulte.	No vociduo	W.	Il or	H,AsO,

Add H.50., mix well and beat.

Ruddy coloured fumes.	KT'& starch and H,50,			A,H	нио,
of Chilorine.	Cos NO = black pre.			HJPeO ₁₀	O SHCIO.
Chiorous gas Yellore gas	Sulphindylic Acid	4 H.SO.		H,PeO;	H°CIO3.
Odour of Vinegar	reg.Cl.= C.H.O+	- OS.H odour of suine.		HC)	нсно "
Acid Families.	= ved gas. Sulphindylic Acid	+H.50.4=	A SOLE I	нио	ноо нсю насио нсио нсио нсио нсио нсио
THE RESERVE AND ADDRESS OF THE PARTY OF THE	See To Top of Bud.		assent associ	H	нс'но-
acid l		Residue chara.	Durned sugar.	CaO + Aq to Alkaline reaction =	H'C'H'O°
No acid Jumes.	Evaporate to dryness per.	idue chara.	And odour.	reaction =	H'C'H'O'. H'O'
Chlorina riden:	Can Distributed Nichture Trees (perc.	Wo rendue.	test papers.	HCIO*	H O.

TABLE OF THE SOLUBILITY OF THE MORE COMMON SALTS.

	Ag.O.	PbO.	Hg,0.	HgO.	CuO.	Bi,O,r	CdO.	SnO.	SnO _x .	Au ₂ O ₃ .	PtO _x	Sb,O,	As,O3.	As,Os.	Al ₂ O ₃ .	Cr2O3.	ZnO.	MnO.	Nio.	CoO.	FeO.	Fe ₂ O ₃ .	BaO.	SrO.	CaO.	MgO.	K,0.	Na,0.	2(NH4)O.	
Oxide	A	A	A	A	A	A	A	A	a	A	A	A	W	W	A	A	A	A	A	A	A	A	w	w	w	A	W	W		Oxide
H,CrO,		0																									W	W	W	H,CrO,
H,SO,		a	W	W	W										W	W	W	W	W	W	W	W	0	0	w	W	W	W	W	H ₂ SO ₄
H,SO3																									A		W	W.		H,SO,
H,S,O3																									A			W		H,S,O,
H,CO3	A	A			A												A.	A			A		A	A	A	A	W	W	W	H,CO3
H,B,O,																									A			W		H ₂ B ₂ O ₄
H,C,O,																									A		W	W	W	H ₂ C ₂ O ₄
H ₃ PO ₄	A	A			A																A	A	A	A	A	A	W	W	W	H ₃ PO ₄
HCl	0	w	0	W	W	W	W	W	W	W	W	W	W		W	W	W	W	W	W	W	W	W	W	Ŵ	W	W	W	W	HCl
HCy	A			A																							W	W		HCy
HI		w					W														W						W	W	W	HI
HBr										W																	W	W	W	HBr
H,S	A	A		A	A	A	A	A				A	A	A			A	A			A		A	A	A		W	W	W	H,S
H ₃ FeCy ₆																											W			H ₃ FeCy ₆
H ₄ FeCy ₆																											W	W	W	H₄FeCy₅
HClO																									W	W	W	W		HClO
HClO ₃											3												W		W		W	W		HClO ₃
HNO ₃	W	W	W	W	W	W	W										W			W	W	W	W	W	W	W	W	W	W	HNO ₃
HNO ₂																											W	W		HNO,
HC,H,O,		W			W										W		W				W	W			W		W	W	W	HC,H,O,
HC,H,O,															F												W	W	W	HC,H,O,
H,C,H,O6												W													A		w	W	w	H,C,H,O
H ₃ C ₆ H ₅ O,																											W	W		H ₃ C ₆ H ₅ O
H,AsO,					A																						W	W		H,AsO;
H,AsO,					A															100							W	W		H ₃ AsO ₄

Soluble in water, W. Soluble in HCl or HNO, A. Slightly soluble in water, w. Slightly soluble in acids, a. Insoluble in water, HCl or HNO, O.

A Oxide A AA AA AA W W W W W W W W W W W W W W										
H,CrO, O , H,SrO, H,SrO, W , W , W , W , W , W , W , W , W , W	No.C.	सम्पुट:	.065	Bi'o'	829	98H	Hg.O.	666	Ag.O.	Maio.
H,SO, W W W W H,SO, H,SO, H,SO, H,SO, H,CO, A A A A H,C,O, H,C,O, A A A A A A A A A	1	AA	AA	AA	AW	AW	AA	AA	AA	A Oxide A
H,SO, H,SO, H,SO, H,SO, H,CO, H,CO, H,B,O, H,C,O, H,C,O, H,PO, H,P							N. September	ALCOHOLD BY		H,CrO,
H,S,O,S H,SO,S H,CO,A H,CO,A H,B,O,C H,C,O,C H,C,O,C H,C,O,C H,C,O,C H,C,O,C H,C,O,C H,C,C H,C,C H,C H,C H,C H,C H,C H,C H					W	W	W	Wa	W	M.OS.HM
H,CO,A A A A A A A A A A A A A A A A A A A										H,SO,
H,B,O, H,C,O, H,PO, H,PO, H,PO, H,C,W WO W WW WW W HC,W WO W W W W W W H,S A AA AA AA AA HBr HBr H,FeCy, H,FeCy, H,C,O, W W W W W W W H,C,H,O, W W W W W W H,C,H,O, W W W W W W										H ₂ S ₂ O ₃
H ₂ C ₂ O ₃ H ₃ PO ₃ A A A A H ₃ PO ₄ H ₄ PO ₅ HCy A A HCy A A HI W W W W W W W W W W W W W W W W W W W					A			Α	AA	H,CO,A
H ₃ PO, A A A A A A A A A A A A A A A A A A A										H,B,O,
HCQ W WO WW W W W W W W W W W W W W W W W										H,C,O,
HCy A A W W W W W W L C C C C C C C C C C C C C					A			A	A	H,PO,
HI W W W W W W W W W W W W W W W W W W W	N	W	W	W	W	W	O	WW	O	W DH
HBr W W W W W W W W W						Α			A	HCy
H ₂ S A AA A AA AA AA A A A A A A A A A A A			W					W		IH
H ₃ FeCy ₆ H ₄ FeCy ₆ HClO HClO HClO WHNO WHNO HNO HC,H ₃ O ₃ W W W W W W W HNO HC,H ₃ O ₃ W W W W W W W		W								HBr
H,FeCy,		A	A	AA	AA	AA		A	AA	H ₂ S A
H,FeCy, H,FeCy, HClO HClO HClO HClO HClO W W W W W W W W W W W W W W W W W	1-2-									H ₃ FeCy ₆
HClO ₃ WHNO ₅ WHNO ₆ WW W W W W W HNO ₆ HC,H ₃ O ₅ W W W W W W HC,H ₃ O ₅ W W W W W W	1000									H,FeCy ₆
WHNO3 W W W W W W W HNO2 HNO3 W W W W W W W W W HC,H3O3 W W W W W W W W W W W W W W W W W W										HCIO
HC,H,O, W W W W W J,										HClO ₃
HC,H3O, W W W W W			W	W	W	W	W	W	W	WHNO3
101										HNO.
	1				W		W	W	W	HC,H,O,
HC,H,O,	1									HC,H,O,
H,C,H,O,H	C			W	1					H,C,H,O,
H,C,H,O,	1									H ₃ C ₆ H ₅ O ₅
H ₃ AsO ₃					A					H ₃ AsO ₃
H ₃ AsO ₄					A		la a			H,AsO,

Soluble in water, West Soluble in HGl or HNO.)

