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中华人民共和国国家标准

GB/T 14538—93

综合水文地质图图例及色标

Legend and color standard
for comprehensive hydrogeologic map

1993-07-31 发布　　1994-03-01 实施

国家技术监督局　发布

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综合水文地质图图例及色标

GB/T 14538－93

Legend and color standard for comprehensive hydrogeologic maps

1 主题内容与适用范围

1.1 本标准的主要内容有：地下水类型及富水性，地下水水质，控制性水点，特殊地区特征符号，界线及其他，地质及构造要素，地理要素，剖面图图例，图面配置示意图及色标。

1.2 本标准适用于编制 1∶200 000～1∶500 000 比例尺的综合水文地质图及辅助性图件。本标准规定的图例及色标是综合水文地质图的重要组成部分，是制印综合水文地质图的依据。

2 引用标准

GB 958 区域地质图图例

GB 12328 综合工程地质图图例及色标

3 图例使用说明

3.1 本图例的编制原则：结合 1∶200 000～1∶500 000 综合水文地质图的图面容量，确保图面内容齐全、层次分明、重点突出、含意确切、清晰易读；在考虑系统性、科学性的同时，兼顾了实用性和通用性；制定本标准时，考虑了国内地质、水文地质界常用的图例及色标，并尽可能使之与国际同类标准或方案相协调，以利国际交流；考虑当前的制印技术和水平，做到编绘方便，制印经济。

3.2 地下水类型及富水性用普染色表示；下伏承压淡水的富水性及顶板埋藏深度用网纹符号表示。对多层含水层，可采取分层编制的方法。分层编制时，第三、四含水层可重复第一、二含水层的表示方法。

3.3 本标准中有关定量的等级划分，较多地顾及我国大部分地区的一般情况。对于未规定的特殊情况，可根据具体情况再行细分或自行补充设计符号。

3.4 本标准的图面配置示意图供编制各种国际分幅的不同比例尺图件使用，也可供自行设计的综合水文地质图图面配置参考。

4 色标的主要内容和使用说明

4.1 颜色及编号。综合水文地质图色标共用 18 个颜色。

4.2 选用色色标及色序。供编制本标准未规定的专门水文地质图及其他图件选用。

4.3 本标准选用胶片的网线线数为每厘米 40 线，网线比例为 100%、70%、50%、30%、18%，网线角度为 0°、45°、90°、135°(见下表)。

网线角度	颜色编号	网线角度	颜色编号
0°	2、6、11、15 号	90°	1、9、13、17 号
45°	4、8、10、14、18 号	135°	3、5、7、12、16 号

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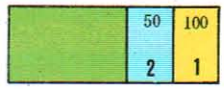
4.4 本标准制版、印刷工艺中，网线误差不超过±5%。

5 综合水文地质图例

5.1 地下水类型及富水性

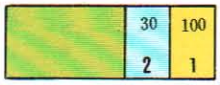
5.1.1 松散岩类孔隙水

5.1.1.1 潜水富水性（单井涌水量，m^3/d）

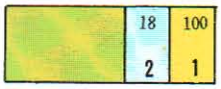


水量极丰富>5 000

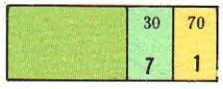
水量丰富1 000～5 000



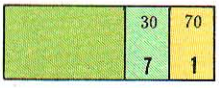
3 000～5 000



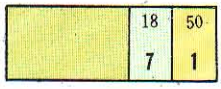
1 000～3 000



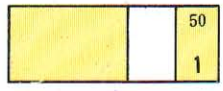
水量中等 100～1 000



500～1 000



100～500



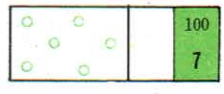
水量贫乏10～100

水量极贫乏<10

5.1.1.2 潜水位埋藏深度（m）

<10

10～30



30～50

>50

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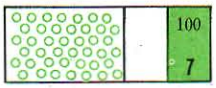
5.1.1.3 下伏承压淡水富水性及顶板埋藏深度

埋深(m) / 富水等级 (m^3/d)	未分	二级划分		三级划分		
		<50	>50	<50	50~100	>100
>1000						
100~1 000						
<100						
水量不明						

注：上部潜水用普染色表示，两者在图面上迭加表示潜水和承压水双层结构。

5.1.1.4 隔水层或透水不含水的松散层

隔水层

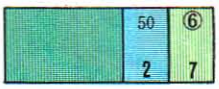


透水不含水的松散层

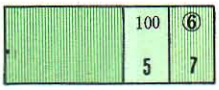
5.1.2 碎屑岩类裂隙孔隙水(主要指层间承压水)

5.1.2.1 一般碎屑岩及红层承压水富水性 (m^3/d)

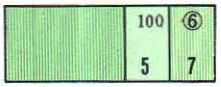
5.1.2.1.1 一般碎屑岩



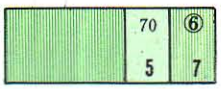
水量丰富 >1 000



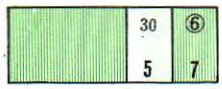
水量中等 100~1 000



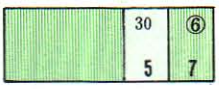
500~1 000



100~500



水量贫乏<100



10~100

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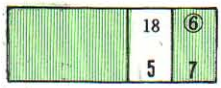
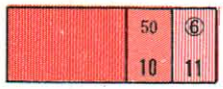


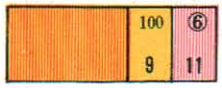
<10

5.1.2.1.2 红层



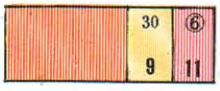
水量丰富>1 000

水量中等100～1 000



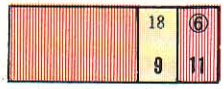
500～1 000

100～500



水量贫乏<100

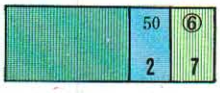
10～100



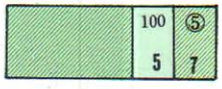
<10

5.1.2.2 承压水顶板埋藏深度（m）

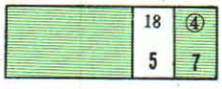
5.1.2.2.1 一般碎屑岩



>100



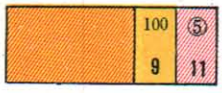
50～100



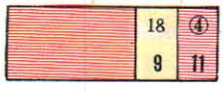
<50

5.1.2.2.2 红层

>100



50～100



<50

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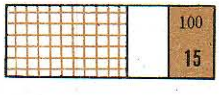
5.1.2.3 下伏一般碎屑岩类承压淡水富水性及埋藏深度

富水等级 (m^3/d) \ 埋深(m)	未分	二级划分		三级划分		
		<50	>50	<50	50~100	>100
>1 000						
100~1 000						
<100						
水量不明						

5.1.2.4 下伏红层承压淡水富水性及顶板埋藏深度

富水等级 (m^3/d) \ 埋深(m)	未分	二级划分		三级划分		
		<50	>50	<50	50~100	>100
>1 000						
100~1 000						
<100						
水量不明						

5.1.2.5 相对隔水层

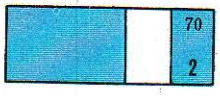


相对隔水层

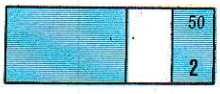
5.1.3 碳酸盐岩类裂隙溶洞水

5.1.3.1 裸露型裂隙溶洞水及富水性

5.1.3.1.1 纯层型（碳酸盐岩占70 %以上）



大泉、暗河流量100～1 000L/s
地下径流模数>6 L/(s·km²)



大泉、暗河流量10～100L/s
地下径流模数 3～6 L/(s·km²)

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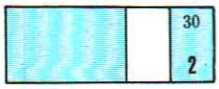


泉流量<10 L/s
地下径流模数<3 L/(s·km²)

5.1.3.1.2 互层、夹层型（碳酸盐岩占 30%～70%）

大泉、暗河流量100～1 000 L/s
地下径流模数>6 L/(s·km²)

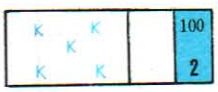
大泉、暗河流量10～100 L/s
地下径流模数 3～6 L/(s·km²)

泉流量<10 L/s
地下径流模数 <3 L/(s·km²)

5.1.3.2 裸露型裂隙溶洞水埋藏深度（与纯层型或互层、夹层型用色相对应）

埋藏深度（m）	未分	二级划分		三级划分		
		<50	>50	<50	50～100	>100
表示方法						

5.1.3.3 汇流盆地富集带及均匀发育带



汇流盆地富集带

均匀发育带

5.1.3.4 覆盖型或埋藏型裂隙溶洞水富水性及其顶板埋藏深度

埋深(m) / 富水等级	未分	二级划分		三级划分		
		<50	>50	<50	50～100	>100
水量丰富						
水量中等						
水量贫乏						
水量不明						

注：水量丰富、水量中等、水量贫乏的数量指标相当于 5.1.3.1 中的三个水量级别。

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5.1.4 其他基岩裂隙水

5.1.4.1 裸露型裂隙水

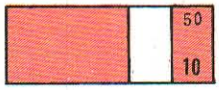
5.1.4.1.1 碎屑岩裂隙水

泉流量>1 L/s
地下径流模数 3～6 L/(s·km²)

泉流量0.1～1 L/s
地下径流模数 1～3 L/(s·km²)

泉流量<0.1 L/s
地下径流模数<1 L/(s·km²)

5.1.4.1.2 变质岩裂隙水

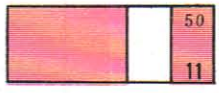


泉流量>1 L/s
地下径流模数 3～6 L/(s·km²)

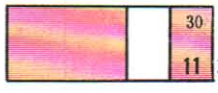
泉流量0.1～1 L/s
地下径流模数 1～3 L/(s·km²)

泉流量<0.1 L/s
地下径流模数<1 L/(s·km²)

5.1.4.1.3 火成岩裂隙水(含玄武岩孔洞裂隙水)



泉流量>1 L/s
地下径流模数 3～6 L/(s·km²)



泉流量0.1～1 L/s
地下径流模数 1～3 L/(s·km²)

泉流量<0.1 L/s
地下径流模数<1 L/(s·km²)

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5.1.4.2 下伏裂隙淡水富水性及顶板埋藏深度(与裸露型各类裂隙水用色相对应)

富水等级 \ 埋深(m)	未分	二级划分		三级划分		
		<50	>50	<50	50~100	>100
水量丰富						
水量中等						
水量贫乏						
水量不明						

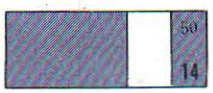
注：水量丰富、中等、贫乏的数量指标相当于5.1.4.1中的三个水量级别。

5.1.5 冻结层水

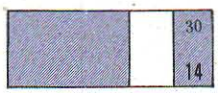
5.1.5.1 冻结层上水

5.1.5.1.1 松散岩类 (m^3/d)

>1 000



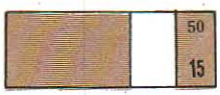
100～1 000



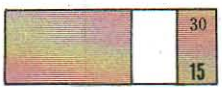
<100

5.1.5.1.2 基岩类 (m^3/d)

>1 000



100～1 000



<100

5.1.5.2 冻结层下水

5.1.5.2.1 松散岩类

富水等级(m^3/d) \ 埋深(m)	<20	20~50	50~100	>100
>1000				
100~1000				
<100				
水量不明				

5.1.5.2.2 基岩类

富水等级(m^3/d) \ 埋深(m)	<20	20~50	50~100	>100
>1000				
100~1 000				
<100				
水量不明				

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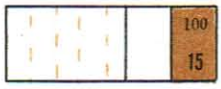
5.2 地下水水质

5.2.1 潜水矿化度（g/L）

淡水<1

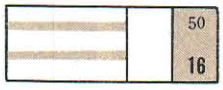


微咸水 1～3

半咸水3～10

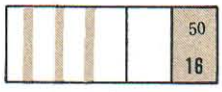
咸水>10

5.2.2 淡水层下的咸水层及其埋深（宽条表示上层淡水，窄条表示下层咸水）



顶板埋深<50m

顶板埋深50～100m



顶板埋深>100m

5.2.3 编图深度内无淡水（矿化度，g/L）

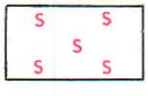
微咸水 1～3

半咸水3～10

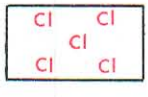
咸水>10

5.2.4 离子含量超过或低于饮用水标准

5.2.4.1 超过饮用水标准



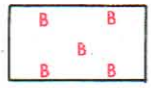
硫酸根



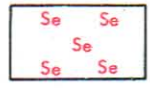
氯离子

硝酸根

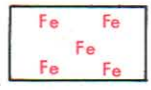
氟离子



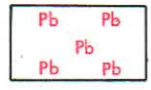
硼离子



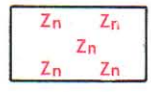
硒离子



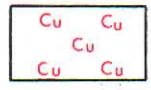
铁离子



铅离子

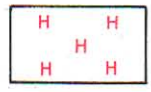


锌离子

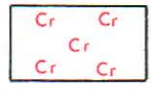


铜离子

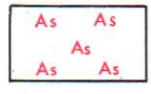
锰离子



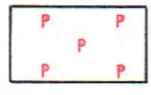
汞离子



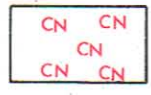
铬离子



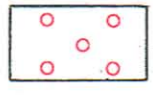
砷离子



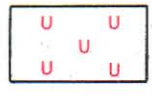
酚离子



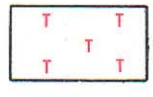
氰离子



其他有机物



放射性



硬度

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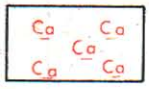
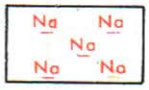
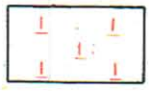
5.2.4.2 低于饮用水标准时在符号下加“—”如：



钙离子



钠离子



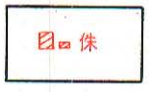
碘离子

氟离子

5.2.5 地下水水质引起的地方病

地方病范围（克山病）

地方病点（地甲病）



地方病村屯（侏儒病）

5.2.6 具特殊水质的地下水

具有工业价值的盐卤水

肥水

5.2.7 调查点水质

淡水孔

微咸水孔或半咸水孔

咸水孔

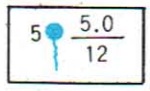
上淡下咸孔

上咸下淡孔

具特殊组分的钻孔
（U—铀、Ra—镭、Rn—氡等）

5.3 控制性水点

5.3.1 泉



下降泉 编号 $\frac{\text{流量}\ (m^3/d)}{\text{标高}\ (m)}$

上升泉

泉群

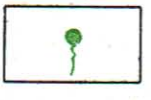
特大泉（>10L/s）

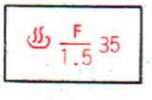
泉集河[数字为河流量(L/s)]

季节泉

脉动泉

悬挂泉


矿泉



温泉 $\frac{\text{主要微量元素}}{\text{水量（L/S）}}$ 水温(20～40℃)

热泉(>40℃)

作为供水水源地并有人工建筑的泉

长期观测泉

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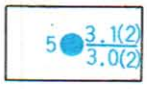
5.3 2 水文地质钻孔

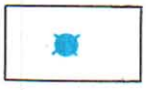
钻孔

单层抽水孔 编号 / 孔深(m) 涌水量(m³/d)(降深,m)



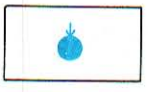
多层抽水孔 编号 上层涌水量(m³/d)(降深,m) / 下层涌水量(m³/d)(降深,m)

探采结合孔


生产孔

承压水孔

自喷的承压水孔


回灌孔

温水孔 微量元素 / 水量(m³/d) 水温(℃)

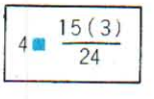
热水孔

观测孔

小于$10^4 m^3/d$ 的供水水源地
[数字为开采量 (m^3/d)]

大于$10^4 m^3/d$ 的供水水源地
[数字为开采量 (m^3/d)]

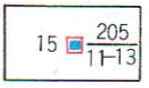
5.3.3 其他



民井 编号 涌水量(m³/d)(降深,m) / 水位埋深(m)

干井

大口井

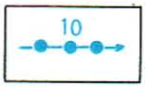


斜井 编号 流量(m³/d) / 深度(m)—长度(m)

试坑

人工补给渗坑

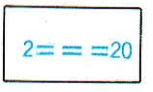
观测井



坎儿井[数字为流量 (m^3/d)]

载流墙[数字为流量 (m^3/d)]

矿山坑道及长期观测矿山坑道

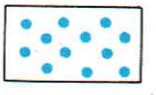


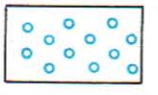
有水隧道 [编号 排水量(m³/d)]

盐井

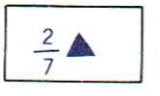
5.4 特殊地区特征符号

5.4.1 干旱区

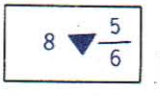

戈壁潜水浅埋带


戈壁潜水深埋带

5.4.2 冻土区



冻土融化层深度观测点 编号 / 深度(m)



冻土厚度观测点 编号 上限厚度(m) / 下限厚度(m)

多年冻土区界线

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岛状 冻土区界线

冰锥

冰丘

5.4.3 岩溶区

能容数人的小型溶洞

能容数十人的中型溶洞

能容数百人的大型溶洞

充水溶洞

干枯的岩溶漏斗

充水的岩溶漏斗编号 $\frac{\text{漏水量}(m^3/d)(\text{降深},m)}{\text{水位埋深}(m)}$

干枯的落水洞

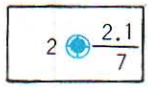
充水的落水洞

干枯的天然竖井(溶井)

充水的天然竖井(溶井)

溶潭

地表塌陷



暗河天窗编号 $\frac{\text{枯期流量}(L/s)}{\text{水位埋深}(m)}$

盲谷

伏流及其进出口[数字为枯期流量(L/s)]

地下暗河及出水口[数字为流量(L/s),红方块表示取水工程]

岩溶洼地

岩溶湖

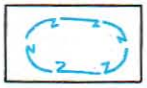
5.5 界线及其他

承压水分布范围

推测承压水分布范围

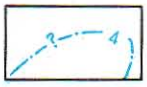
自流水分布范围

推测自流水分布范围

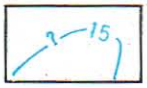

上层滞水分布范围

推测上层滞水分布范围

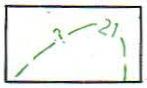
地热异常范围



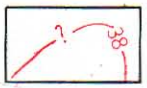
地下水等水压线[数字为测压水位标高(m)、?处为推测]



地下水等水位线[数字为水位标高(m)、?处为推测]



地下水埋藏深度等值线[数字为水位埋藏深度(m)、?处为推测]



地下水等温线[数字为水温(℃)、?处为推测]

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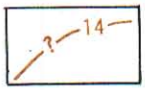
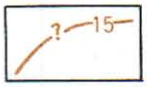
免费标准下载网(www.freebz.net)



岩层顶板或底板标高(埋深)等值线[数字为标高或埋深（m）、？处为推测]

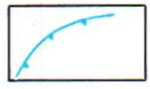


岩层等厚线[数字为岩层厚度（m）、？处为推测]

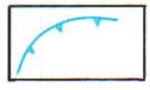
地下水类型界线

矿化度界线

开采深度内无淡水区



开采深度全淡水区



咸水层上淡水分布区

地下水开采有利或富集地段

海水入侵影响界线

区域下降漏斗 $\frac{\text{中心降深（m）}}{\text{年平均下降幅度（m）}}$

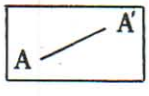
以砂砾石为主的冲洪积扇边界(虚线为掩埋)

以卵砾石为主的冲洪积扇边界(虚线为掩埋)

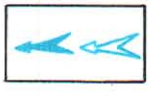
地表分水岭

地下分水岭

洪水泛滥界线(数字为年代)



剖面线



潜水及承压水流向

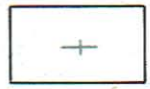
5.6 地质及构造要素

5.6.1 地质

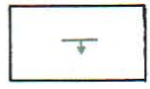
参见 GB958 — 89

5.6.2 构造要素

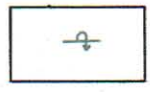
地层产状



水平地层产状

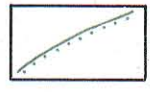


直立地层产状



倒转地层产状

地质界线

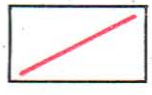


角度不整合界线

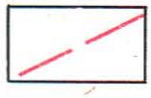
背斜轴

向斜轴

5.6.3 断层



断层（性质不明）



推测断层

正断层

逆断层

逆掩断层

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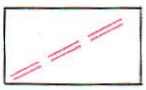
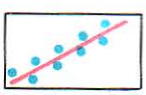
平推断层


隐伏活动断裂

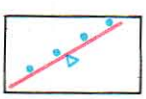
现今活动断裂

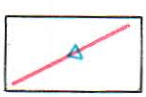
5.6.4 构造和断层的水理性质

储水的背斜和向斜

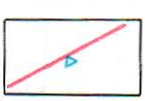

两侧充水断层

推测 充水断层

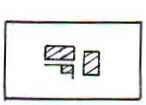

一侧充水一侧阻水断层

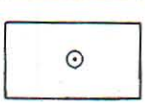

导水断层

横越断层

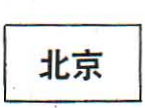

阻水断层

5.7 地理要素

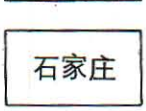

居民地


乡、镇（1：50万）

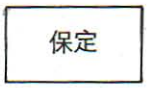
村（1：50万）



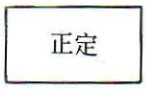
首都



省会、直辖市



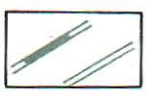
市



县

乡、镇

村

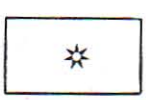

铁路、公路

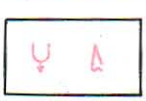
等高线及注记[数字为高程(m)]

高程点、主要山峰[数字为高程(m)]

陡崖

活火山口


死火山口


滑坡、泥石流

崩塌

现代冰川

雪被

固定沙漠

半固定沙漠

移动沙漠（箭头为移动方向）

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戈壁

新月型沙丘、沙丘链

复合新月型沙垄、沙丘链

梁窝状沙丘

缓起状沙丘

河流及水文站 $\frac{\text{年平均径流量（L / S）}}{\text{枯季年平均径流量（L / S）}}$

沟谷枯季测流点
[流量（L / S）.流域面积（km^2）]

间歇河

河流补给地下水

河流排泄地下水

淡水湖

微咸水湖[数字为矿化度（g / L）]

咸水湖[数字为矿化度（g / L）]

海水咸潮及顶托潮到达位置

通过困难的沼泽

通过容易的沼泽

受降水补给的沼泽

受地下水补给的沼泽

盐沼

洇洳地

盐渍化

重盐渍化

硬盐壳

喜水植物

大中型水库[数字为库容（$10^8 m^3$）]

小型水库

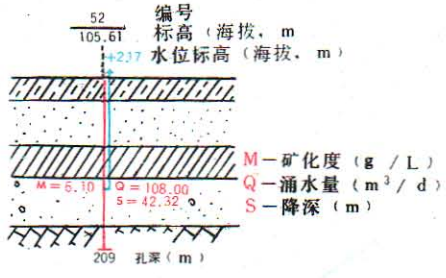
气象站

已建电站〔数字为发电功率（10^7W）〕

设计电站〔数字为装机容量（10^7W）〕

5.8 剖面图图例

5.8.1 剖面图示



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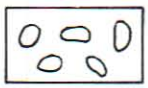
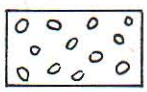
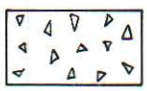
5.8.2 剖面图和柱状图的岩性符号

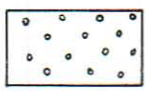
5.8.2.1 松散岩类


漂石

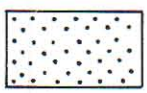
块石


卵石


碎石


砾石

砂砾石

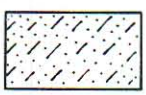

粗砂

中砂

细砂

粉砂

粉土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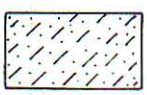
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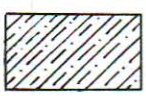
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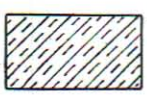
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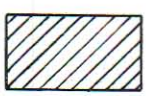
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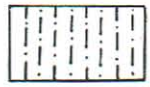
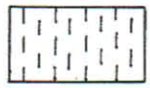

黄土状亚砂土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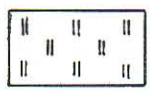
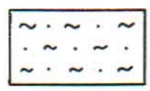
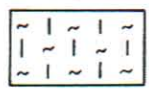
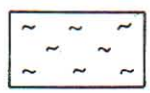
黄土


红粘土

软粘土


淤泥质亚粘土

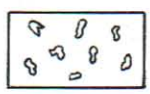

淤泥质粘土


淤泥

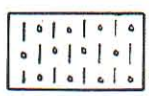
泥炭

人工填土

腐植土层


砂姜

化学沉积


冰水泥砾

贝壳层

5.8.2.2 其他岩类岩性符号

参见 GB 12328 — 90

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5.9 图面配置示意图

注：非标准分幅的图面配置可自行设计。

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6 色标

6.1 颜色及编号

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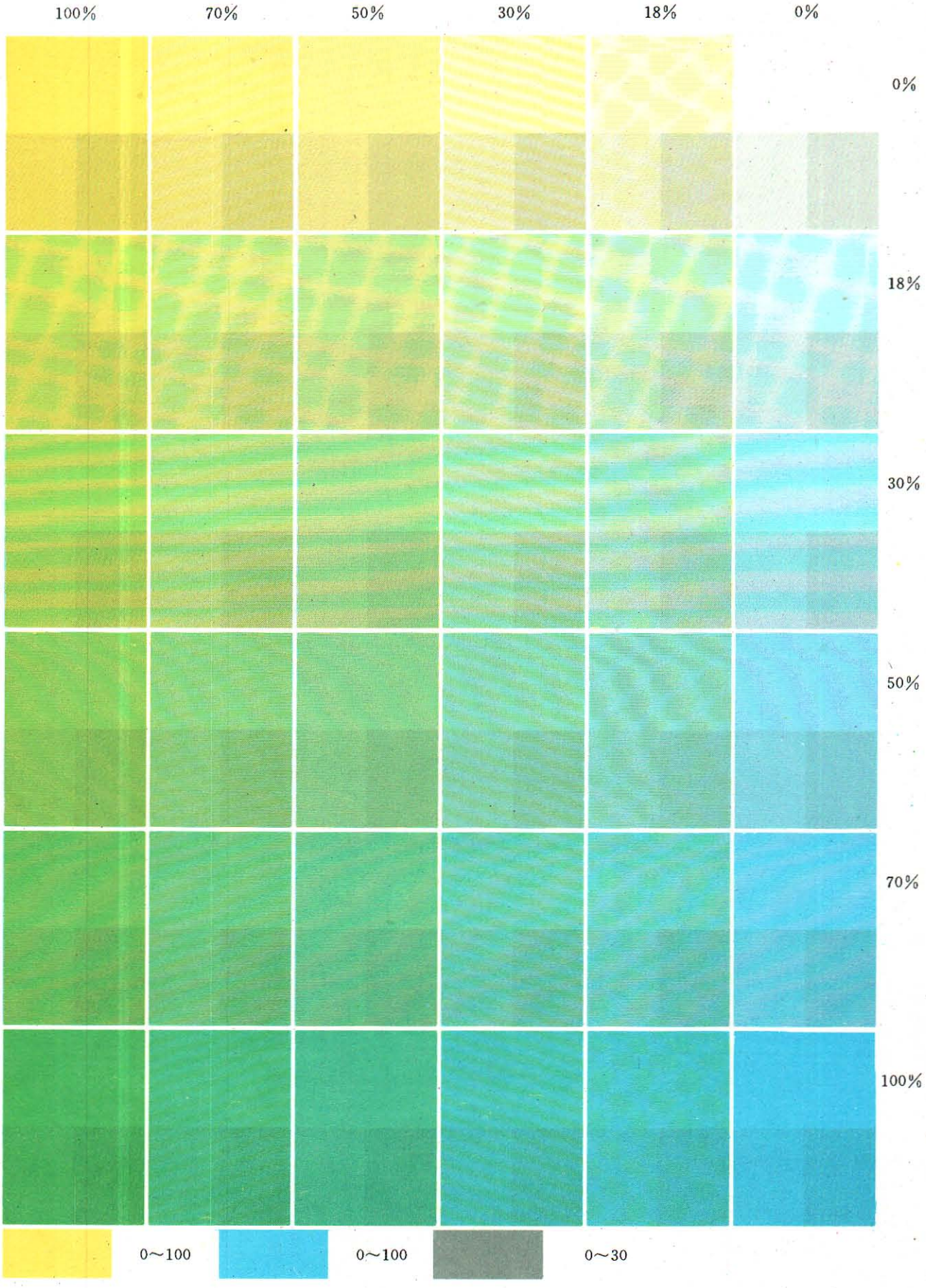
6.2 选用色色标



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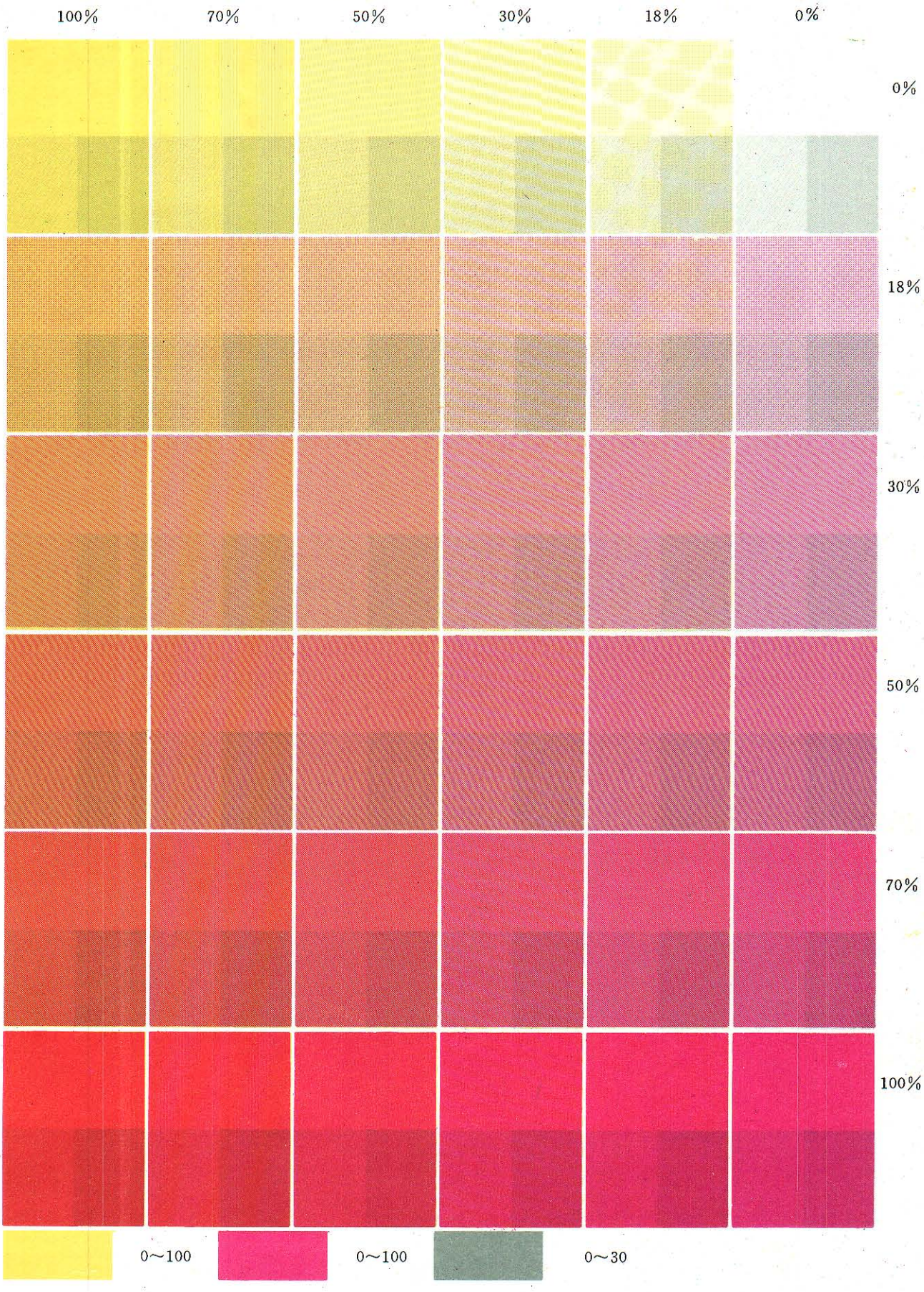

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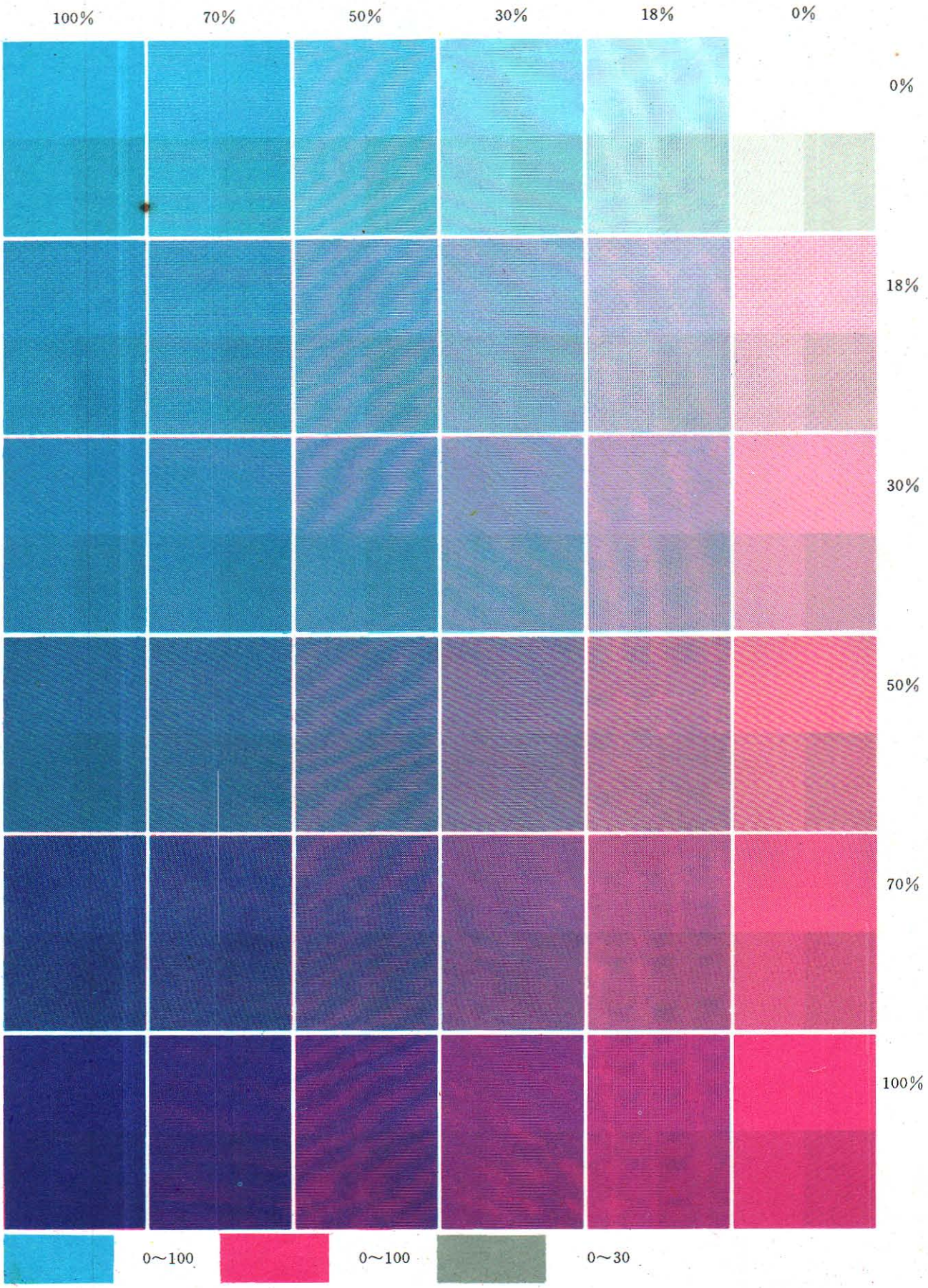

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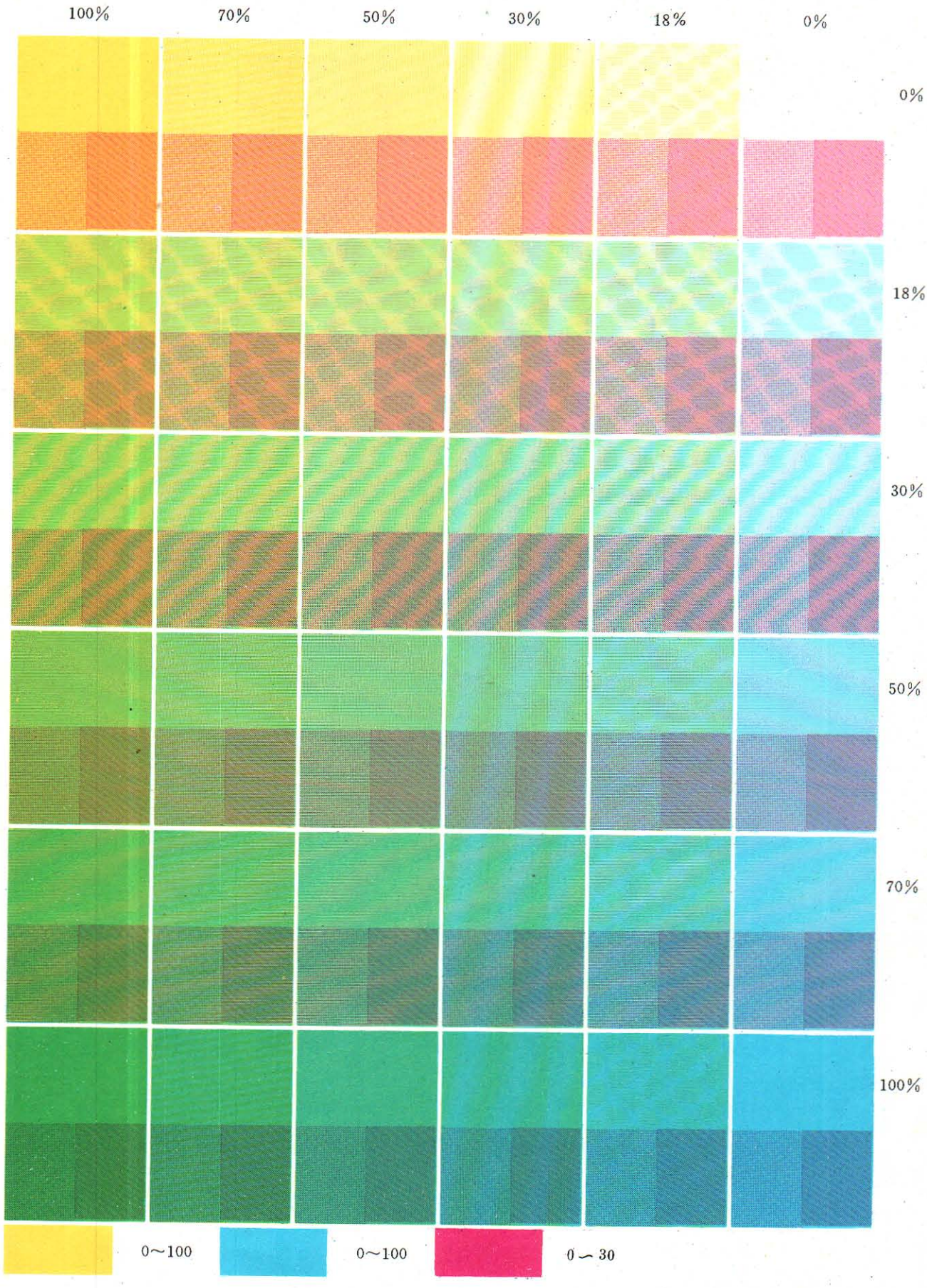

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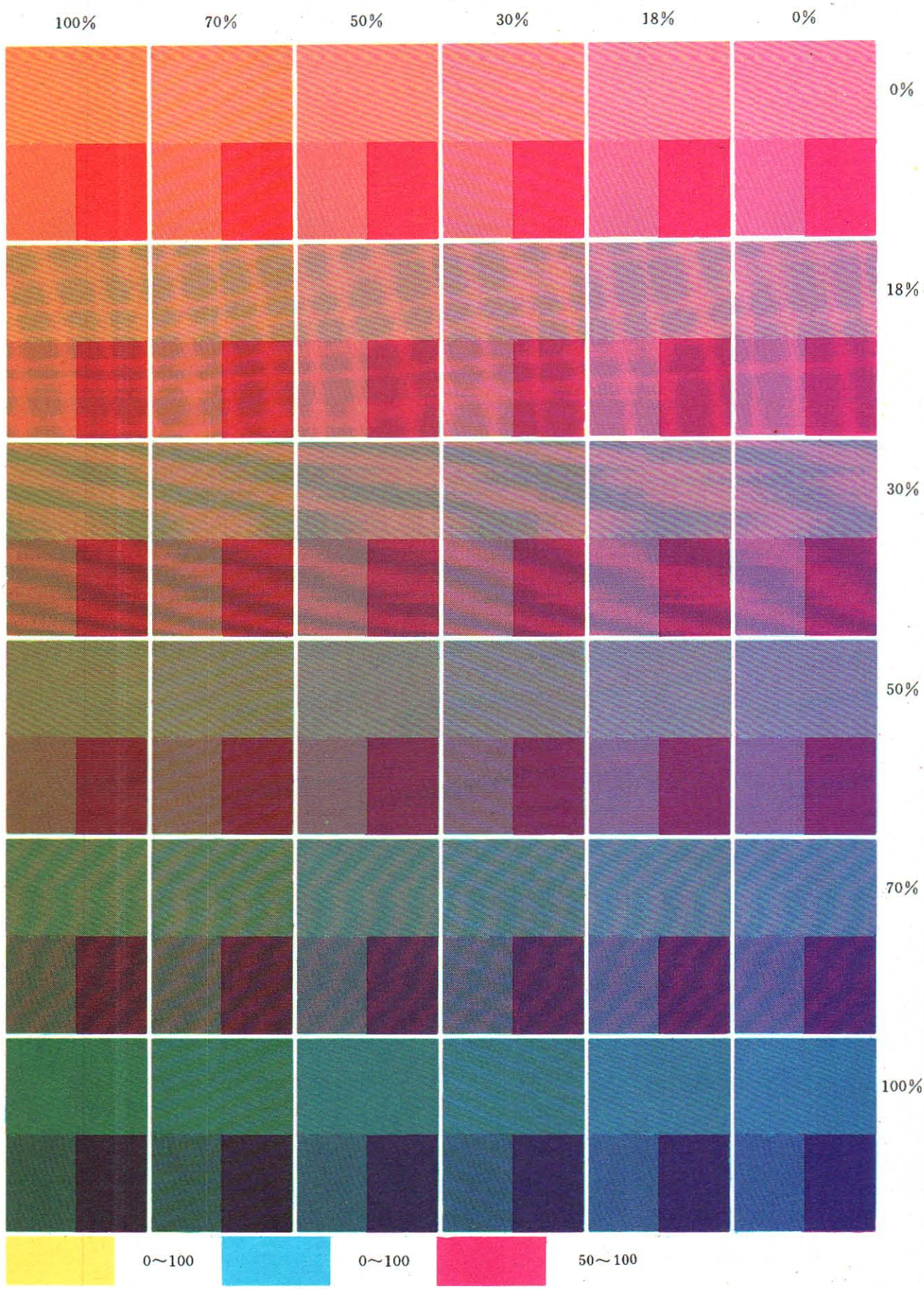

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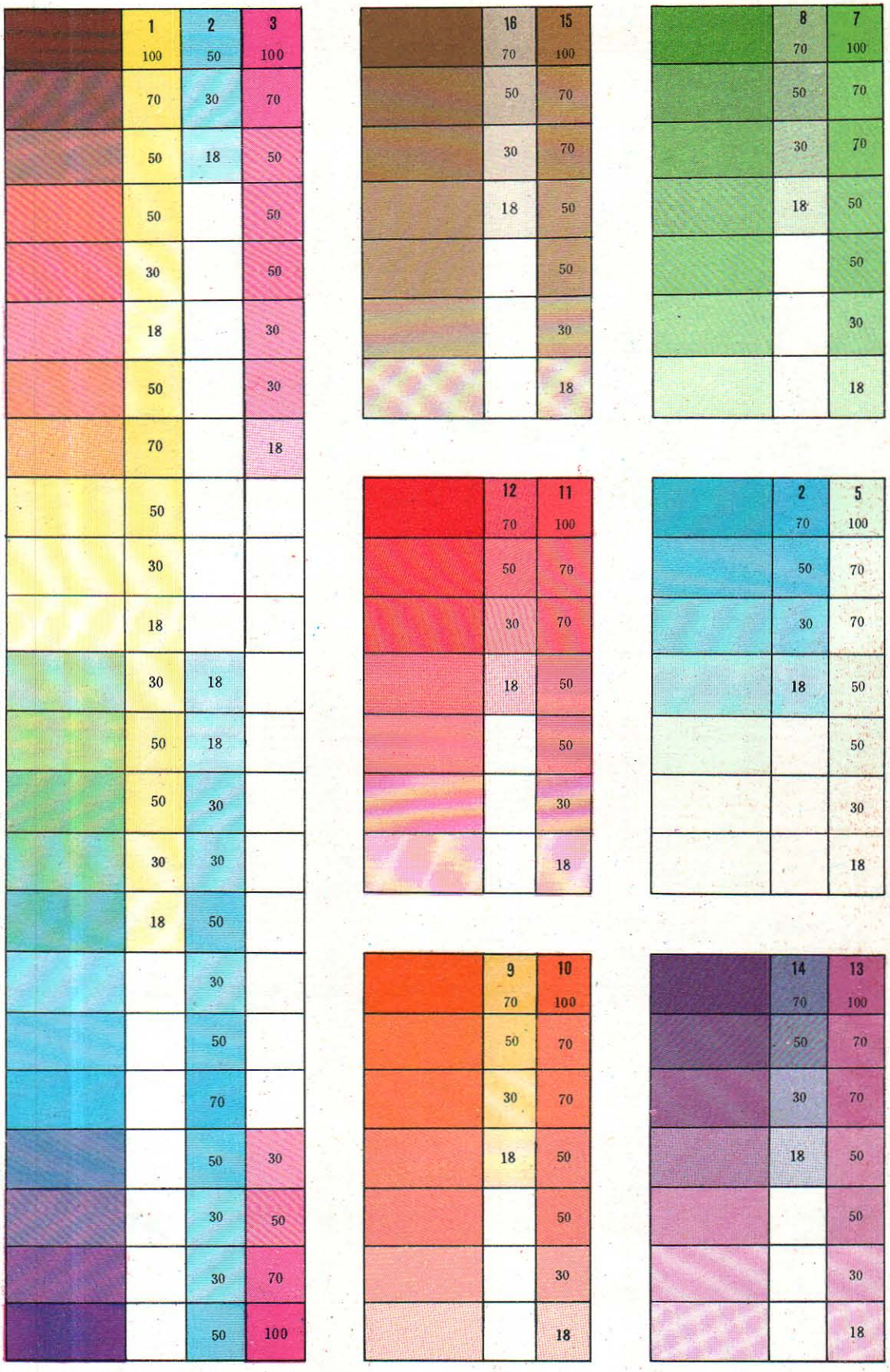
6. 3 色序



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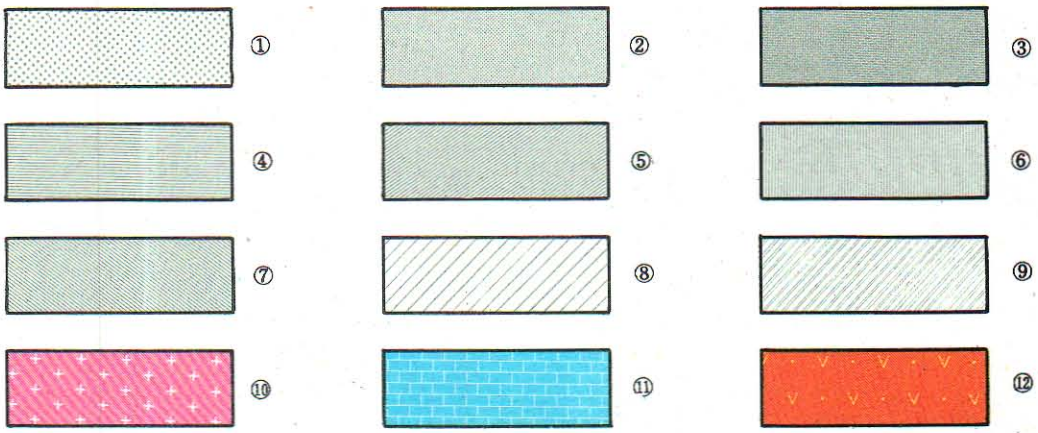
6.4 网纹



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