

Title: Lead acid battery theory

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If we discharge the battery more slowly, say at a current of  $C/10$ , then we might expect that the battery would run longer (10 hours) before becoming discharged.

A table listing essential parameters of different rechargeable battery types can be found, e.g., in this Wiki page, or in this Electropaedia chart. Note that in most such tables the lead-acid battery is listed at the ...

We'll take you on a roller-coaster ride today, from the first battery to lead-acid technology perfected in our range of batteries. Our story begins when an Italian researcher named Galvani ...

Presents a comprehensive overview of the theory of the technological processes of lead-acid battery manufacture and their influence on battery performance parameters

Lead-acid and nickel-cadmium batteries lose their charge very quickly. For example, a lead-acid battery stored at 30°C would lose half its initial charge in about 3 or 4 months while, for nickel-cadmium, this ...

Lead and lead dioxide, the active materials on the battery's plates, react with sulfuric acid in the electrolyte to form lead sulfate. The lead sulfate first forms in a finely divided, amorphous state and ...

This chapter discusses lead-acid batteries, including their cell designs, construction types, discharge characteristics, charging methods, and factors that affect battery life.

Sealed Lead Acid Starter Batteries Deep-Cycle Battery Lead Acid Or Li-Ion in Your Car? The first sealed, or maintenance-free, lead acid emerged in the mid-1970s. Engineers argued that the term "sealed lead acid" was a misnomer because no lead acid battery can be totally sealed. To control venting during stressful charge and rapid discharge, valves have been added that release gases if pressure builds up. Rather than submergi... See more on batteryuniversity #b\_results li.b\_ans.b\_mop.b\_mopb,#b\_results li.b\_ans.b\_nonfirsttopb{border-radius:6px;box-shadow:0 0 0 1px rgba(0,0,0,.05);margin-top:12px;margin-bottom:10px;padding:15px 19px 10px}#b\_results

li.b\_ans.b\_mop.b\_mopb .b\_sideBleed{margin-left:-19px;margin-right:-19px}#b\_results  
.b\_vidAns{border-radius:6px;box-shadow:0 0 1px rgba(0,0,0,.05);padding:16px 20px;gap:10px;background:#fff}@charset "UTF-8";#b\_results  
.b\_ans.b\_vidAns{box-shadow:none!important;padding:var(--smtc-gap-between-content-medium) 0!important;background:var(--bing-smtc-background-ctrl-fade-on-image-stop-0)}#b\_results #serpvidans.vsacf  
.mc\_vtvc,#b\_results #serpvidans.vsacf .mc\_vtvc\_th,#b\_results #serpvidans.vsacf .cico,#b\_results #serpvidans.vsacf  
#serpvidans.vsacf .mc\_vtvc\_htb,#b\_results #serpvidans.vsacf .vrhc,#b\_results #serpvidans.vsacf  
.vrhcp,#b\_results #serpvidans.vsacf .vrhtc,#b\_results #serpvidans.vsacf  
.vrhtpc{border-radius:var(--mai-smtc-corner-list-card-default)}#b\_results #serpvidans.vsacf .mmlist  
.mc\_vtvc,#b\_results #serpvidans.vsacf .mmlist .mc\_vtvc .mc\_vtvc\_meta{margin:0}#b\_results #serpvidans.vsacf  
#serpvidans.vsacf .mmlist .mc\_vtvc .mc\_vtvc\_meta .mc\_vtvc\_meta\_channel,#b\_results #serpvidans.vsacf  
.mmlist .mc\_vtvc .mc\_vtvc\_meta\_row\_channel{color:var(--smtc-foreground-content-neutral-primary)}#serpvidans.vsacf,#serpvidans.vsacf  
.expctn .expbody,#serpvidans.vsacf .mmlist{display:flex;flex-direction:column;gap:var(--smtc-gap-between-content-medium)}#serpvidans.vsacf  
.cico{height:auto}#serpvidans.vsacf .mc\_vtvc\_ban\_lo{top:0;right:auto}#serpvidans.vsacf .mc\_cwvc .mc\_vtvc  
.mc\_vtvc\_meta,#serpvidans.vsacf .mmlist .mc\_vtvc .mc\_vtvc\_meta{height:auto;padding:var(--smtc-gap-between-content-xx-small) 0  
var(--smtc-gap-between-content-xx-small) var(--smtc-gap-between-content-medium);display:flex;flex-direction:column;justify-content:space-between}#  
serpvidans.vsacf .mc\_cwvc .mc\_vtvc .mc\_vtvc\_meta .mc\_vtvc\_title,#serpvidans.vsacf .mmlist .mc\_vtvc  
.mc\_vtvc\_meta .mc\_vtvc\_title{color:var(--smtc-ctrl-link-foreground-brand-rest);font:var(--bing-smtc-text-global-body2);height:auto;display:-webkit-box;-webkit-line-clamp:2;-webkit-box-orient:vertical}#serpvidans.vsacf .mc\_cwvc  
.mc\_vtvc .mc\_vtvc\_meta .mc\_vtvc\_meta\_block\_area,#serpvidans.vsacf .mc\_cwvc .mc\_vtvc .mc\_vtvc\_meta  
.mc\_vtvc\_meta\_block,#serpvidans.vsacf .mmlist .mc\_vtvc .mc\_vtvc\_meta  
.mc\_vtvc\_meta\_block\_area,#serpvidans.vsacf .mmlist .mc\_vtvc .mc\_vtvc\_meta  
.mc\_vtvc\_meta\_block{display:flex;flex-direction:column;gap:var(--smtc-padding-ctrl-text-side)}#serpvidans.  
vsacf .mc\_cwvc .mc\_vtvc .mc\_vtvc\_meta .mc\_vtvc\_meta\_block\_area .mc\_vtvc\_meta\_row,#serpvidans.vsacf  
.mc\_cwvc .mc\_vtvc .mc\_vtvc\_meta .mc\_vtvc\_meta\_block .mc\_vtvc\_meta\_row,#serpvidans.vsacf .mmlist  
.mc\_vtvc .mc\_vtvc\_meta .mc\_vtvc\_meta\_block\_area .mc\_vtvc\_meta\_row,#serpvidans.vsacf .mmlist  
.mc\_vtvc .mc\_vtvc\_meta .mc\_vtvc\_meta\_block .mc\_vtvc\_meta\_row\_channel::before,#serpvidans.vsacf  
.mc\_cwvc .mc\_vtvc .mc\_vtvc\_meta .mc\_vtvc\_meta\_block .mc\_vtvc\_meta\_row  
.mc\_vtvc\_meta\_row\_channel::before,#serpvidans.vsacf .mmlist .mc\_vtvc .mc\_vtvc\_meta  
.mc\_vtvc\_meta\_block\_area .mc\_vtvc\_meta\_row .mc\_vtvc\_meta\_row\_channel::before,#serpvidans.vsacf  
.mmlist .mc\_vtvc .mc\_vtvc\_meta .mc\_vtvc\_meta\_block .mc\_vtvc\_meta\_row  
.mc\_vtvc\_meta\_row\_channel::before{content:" ? " }#serpvidans.vsacf .mc\_cwvc .mc\_vtvc .mc\_vtvc\_meta  
.mc\_vtvc\_meta\_block\_area .mc\_vtvc\_meta\_pubdate,#serpvidans.vsacf .mc\_cwvc .mc\_vtvc .mc\_vtvc\_meta  
.mc\_vtvc\_meta\_block .mc\_vtvc\_meta\_pubdate,#serpvidans.vsacf .mmlist .mc\_vtvc .mc\_vtvc\_meta

```
.mc_vtvc_meta_block_area .mc_vtvc_meta_pubdate,#serpvidans.vsacf .mmlist .mc_vtvc .mc_vtvc_meta
.mc_vtvc_meta_block
.mc_vtvc_meta_pubdate{color:var(--bing-smtc-foreground-content-neutral-tertiary);padding-bottom:0}.vsacf
.mc_cwvc .mc_vtvc_con_rc,.vsacf .mmlist .mc_vtvc_con_rc{display:flex}.vsacf .mc_cwvc .mc_vtvc_con_rc
.mc_vtvc_meta_w,.vsacf .mmlist .mc_vtvc_con_rc .mc_vtvc_meta_w{height:auto}.vsacf
.b_title{padding-left:0}.vsacf .b_title
.mmtitle{font:var(--bing-smtc-text-global-subtitle1-strong);margin-bottom:0}.vsacf .b_title .mmtitle
a::after{content:"";margin:5px 5px 0 0;border-top:2px solid
var(--smtc-foreground-content-neutral-primary);border-right:2px solid
var(--smtc-foreground-content-neutral-primary);background-size:7px
7px;width:7px;height:7px;transform:rotate(45deg);display:inline-block;margin-left:4px}#serpvidans.vsacf
.b_title .mmtitle{margin-bottom:0}#serpvidans.vsacf .b_title .mmtitle
a{color:var(--smtc-foreground-content-neutral-primary)}#serpvidans.vsacf
.mc_cwvc{width:100%;margin-bottom:var(--smtc-gap-between-content-x-small)}#serpvidans.vsacf
.mc_cwvc .mc_vtvc{box-shadow:none}#serpvidans.vsacf .mc_cwvc .mc_vtvc
.mc_vtvc_meta{height:100%;padding:var(--smtc-gap-between-content-x-small) 0
var(--smtc-gap-between-content-x-small)
var(--mai-smtc-padding-card-default);background:var(--bing-smtc-background-ctrl-fade-on-image-stop-0)}#s
erpvidans.vsacf .mc_cwvc .mc_vtvc .mc_vtvc_meta
.mc_vtvc_title{font:var(--bing-smtc-text-global-body1)}#serpvidans.vsacf .cardless.mmlist
.mc_vtvc_con_rc,#serpvidans.vsacf .cardless.mmlist .mc_vtvc_th{height:auto}#serpvidans.vsacf
.vsb_tr_c.va_tt{margin:0}#serpvidans.vsacf .vtbc .mv_vtvc_play,#serpvidans.vsacf .vtbc
.mv_vtvc_play_ext{position:static}#serpvidans.vsacf .va_tt
.mc_vtvc_ban_lo{display:block}#serpvidans.vsacf
.mc_bc{width:auto;border-radius:var(--smtc-ctrl-badge-sm-corner);padding:var(--smtc-padding-ctrl-text-side)
var(--smtc-gap-between-content-xx-small)}#serpvidans.vsacf .rmts .mc_bc
ems{display:none}#serpvidans.vsacf a.vsb_tr_t{color:var(--smtc-foreground-content-neutral-primary)}.vsacf
.va_tt .vsb_tr_chd .mc_vtvc_th_dock.rmoverlay{height:36px}.vsacf .va_tt .vsb_tr_chd
.mc_vtvc_th_dock{height:92px;background:linear-gradient(180deg,var(--bing-smtc-background-ctrl-fade-on-i
mage-stop-0) 0%,var(--mai-smtc-background-ctrl-on-image-rest) 100%)}.vsacf .va_tt a.vsb_tr_t{padding:0
0;font:var(--bing-smtc-text-global-body-2-alt-strong)}.vsacf .va_tt .vsb_tr_chd .mc_vtvc
.mc_vtvc_meta,.vsacf .va_tt .vsb_tr_chd .mc_vtvc
.mc_vtvc_title{color:var(--mai-smtc-foreground-ctrl-on-image-rest)}.vsacf
span.vcmt_ctt{font:var(--bing-smtc-text-global-caption2);margin:var(--smtc-gap-between-content-xx-small) 0
0;height:16px}#serpvidans.vsacf .vsb_tr_chd .mc_vtvc_tot .mc_vtvc_title
strong{font-size:14px;line-height:20px;display:unset}#serpvidans.vsacf .va_tt .b_slrdp
.slide:not(:first-child){margin-left:var(--smtc-gap-between-content-small)}#serpvidans.vsacf .va_tt
.vsb_tr_chd .mc_vtvc
.mc_vtvc_title{white-space:normal;display:-webkit-box;-webkit-line-clamp:2;-webkit-box-orient:vertical}#s
erpvidans.vsacf .b_module_expansion_control .b_btnContainer
.b_CompactExpansion{background-color:var(--bing-smtc-background-ctrl-neutral-rest);display:flex;justify-co
ntent:center;align-items:center;gap:4px;width:fit-content;height:auto;padding:8px 12px}#serpvidans.vsacf
```

```

.b_module_expansion_control .b_btnContainer .b_CompactExpansion
.b_CompactExpansionBtnText{font:var(--bing-smtc-text-global-caption1-strong);color:var(--bing-smtc-foregr
ound-content-brand-rest)}#serpvidans.vsaf .b_module_expansion_control .b_btnContainer
.b_CompactExpansion .b_arrow{display:flex;margin:0;height:auto}#serpvidans.vsaf
.b_module_expansion_control .b_btnContainer .b_CompactExpansion .b_arrow
path#Shape{fill:var(--bing-smtc-foreground-content-brand-rest)}#serpvidans.vsaf
.b_module_expansion_control
.b_btnContainer::after{content:"";position:absolute;width:100%;bottom:20px;left:0;height:1px;border-radius:
1px;background:var(--smtc-stroke-ctrl-on-neutral-rest)}#b_results
.b_ans.b_vidAns{box-shadow:none;padding:12px 20px 0}#b_results .b_ans.b_vidAns
.vasac{padding:unset;margin:0}#b_results .b_ans.b_vidAns .vsa .b_attribution{padding-bottom:0}#b_results
.b_ans.b_vidAns .cardless .salink{margin:0}#b_results .b_ans.b_vidAns .mmlist
.mc_vtvc{margin-top:10px}#b_results .b_ans.b_vidAns .mmlist .mc_vtvc
.mc_vtvc_meta{display:flex;flex-direction:column;justify-content:space-between;margin:0 10px 4px
12px}#b_results .b_ans.b_vidAns .mmlist .mc_vtvc .mc_vtvc_meta
.mc_vtvc_meta_channel{color:#111}#b_results .b_ans.b_vidAns .mmlist .mc_vtvc .mc_vtvc_meta
.mc_vtvc_meta_row_channel,#b_results .b_ans.b_vidAns .mmlist .mc_vtvc .mc_vtvc_meta
.mc_vtvc_meta_block_area{color:#666}#b_results .b_ans.b_vidAns .mmlist .mc_vtvc .mc_vtvc_meta
.mc_vtvc_meta_block_area{bottom:0;height:unset}.b_dark .vsa.cardless
.mc_vtvc{background-color:unset}.mmtitle>a{display:block}.mc_fh{height:100%;border-radius:6px}.mc_tc_
bs{overflow:hidden}#mc_cwvc_1770630627254 { width:356px; max-width: 100%; } .mc_vtvc
.mc_vtvc_meta { padding: 16px 16px 16px 16px; } .mc_vtvc .mc_vtvc_meta_w { height: 139px; margin-top:
-0px; } .mc_vtvc .mc_vtvc_title { height: 54px; line-height: 18px; margin-bottom: 18px; margin-top: 0px; }
.mc_vtvc .mc_vtvc_meta_block_area { height: 35px; } .mc_vtvc .vtmu, .mc_vtvc .vtpl { bottom: 147px; }
.mc_vtvc_th_dock { height: 139px; } .mc_vtvc_th .cico { height: 200px; }
.mc_vtvc{background-color:#fff;box-shadow:0 0 0 1px
rgba(0,0,0,.05);line-height:0;margin:0;position:relative;border-radius:6px;overflow:hidden}.mc_vtvc.noshado
w{box-shadow:none}.mc_vtvc_con_rc{border-radius:6px;overflow:hidden;position:relative}.mc_vtvc>a{colo
r:#71777d;display:block;text-decoration:none;width:100%}.mc_vtvc>a:focus::after{outline:2px solid
#00a89d;width:100%;height:100%;content:"";outline-offset:-2px;position:absolute;top:0;left:0}.mc_vtvc_th{ba
ckground-color:#d5d5d5;position:relative}.mc_vtvc_th
.cico{border-radius:0}.mc_vtvc_ban_lo,.mc_vtvc_ban_up{position:absolute;vertical-align:middle}.mc_vtvc_
ban_lo{bottom:0}.mc_vtvc_ban_up{top:0}.mc_vtvc_title{font-weight:normal;margin-bottom:11px;overflow:
hidden;color:#111;height:54px;line-height:18px}.mc_vtvc_title
a{display:inline-block;color:#111}.mc_vtvc_title
a:hover{text-decoration:underline}.mc_vtvc_src_ico{float:left;margin-right:4px}.mc_vtvc_act{height:16px;m
argin-top:-40px;padding:12px
8px;z-index:1}.mc_vtvc_actc{right:16px;bottom:16px;position:absolute;display:inline-block;z-index:1}.mc_v
tvc_act_sep{border-top:1px solid #d5d5d5;height:40px;margin:0 8px}.mc_vtvc_fh
.mc_vtvc_act_sep,.mc_vtvc_fh .mc_vtvc_act{visibility:hidden}#serpvidans
.b_topTitle{margin-bottom:8px}.mc_vtvc_htc{width:100%;height:100%;position:absolute;top:0;bottom:0;left
:0;right:0}.mc_vtvc_htb{width:100%;height:100%;background:rgba(0,0,0,.7);position:absolute;top:0;bottom:

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# Lead acid battery theory

```
0;left:0;right:0}.mc_vtvc_ht{width:100%;padding:0
16px;line-height:16px;color:#fff;text-decoration:underline;word-break:break-word;box-sizing:border-box;vert
ical-align:middle;text-align:center}.mc_vtvc_th_live_b{background-color:#c80000;color:#fff;display:inline-bl
ock;padding:2px
8px;font:11px/14px
Arial;border-radius:2px;text-transform:uppercase;height:15px;width:26px;position:absolute;left:8px;top:110p
x}.isvctrl
.isv
.mc_vtvc_ban_up{left:0;right:initial}.mc_vtvc_ban_lo,.mc_vtvc_ban_up{right:0}.vt_text.b_IRight
.b_ILeft{margin:0
0
0
1px;height:14px;line-height:14px;padding:2px
8px;background:rgba(0,0,0,.75);border-radius:2px;font-weight:bold}.mc_vthtb{width:100%;height:100%;bac
kground:rgba(0,0,0,.7);position:absolute;top:0;bottom:0;left:0;right:0;display:table}.mc_vtht{width:100%;pad
ding:0
16px;line-height:16px;color:#fff;text-decoration:underline;word-break:break-word;box-sizing:border-box;vert
ical-align:middle;text-align:center;display:table-cell}.vt_text.b_IRight
.b_ILeft{margin:0
0
0
1px;height:14px;line-height:14px;padding:2px
8px;background:rgba(0,0,0,.75);border-radius:2px;font-weight:bold}.emptyStyleForDebuggingPurpose{top:0
}.emptyStyleForDebuggingPurpose{top:0}.mc_vtvc_center_play{width:32px;height:32px;background-size:c
ontain;position:absolute;margin:auto;bottom:0;top:0;left:0;right:0;box-shadow:none;border-radius:0}.mc_vtvc
_center_play.rmvbg{width:32px;height:32px;background-image:none}.mc_vtvc_htb,.mc_vtvc_ht{display:no
ne}.vt_onhv
.mc_vtvc_htb{display:table}.vt_onhv
.mc_vtvc_ht{display:table-cell}.mc_vtvc_center_play{display:inline-block}.vt_onhv
.mc_vtvc_center_play{display:none}.mc_vtvc
.vtmu,.mc_vtvc
.vtpl{bottom:163px}.vsarf
.mc_vtvc
.vtmu,.vsarf
.mc_vtvc
.vtpl{bottom:122px}.svarh
#mmcar
.mc_vtvc
.vtmu,.svarh
#mmcar
.mc_vtvc
.vtpl{bottom:137px}.svarht
#mmcar
.mc_vtvc
.vtmu,.svarht
#mmcar
.mc_vtvc
.vtpl{top:8px;left:8px}.mc_vtvc_center_play{background-image:url(data:image/svg+xml,%3Csvg%20width
%3D%2232%22%20height%3D%2232%22%20viewBox%3D%220%200%2032%2032%22%20fill%3D%22
none%22%20xmlns%3D%22http%3A%2F%2F%2F2000%2Fsvg%22%3E%0D%0A%20%20%20%20%3Cr
ect%20width%3D%2232%22%20height%3D%2232%22%20rx%3D%2216%22%20fill%3D%22black%22%
20fill-opacity%3D%220.6%22%2F%3E%0D%0A%20%20%20%20%3Cpath%20d%3D%22M14.2354%201
0.1923C13.2355%209.62986%2012%2010.3524%2012%2011.4997V20.5C12%2021.6472%2013.2355%202
2.3698%2014.2354%2021.8073L22.2356%2017.3073C23.2551%2016.7339%2023.2551%2015.2661%2022.
2357%2014.6926L14.2354%2010.1923Z%22%20fill%3D%22white%22%20fill-opacity%3D%220.9%22%2
F%3E%0D%0A%3C%2Fsvg%3E)}.mc_vtvc_meta{box-sizing:border-box;display:inline-block;line-height:18
px;position:relative;width:100%}.mc_vtvc_meta_block{bottom:0;position:absolute;width:100%}.mc_vtvc_m
eta_row{line-height:16px;font-size:11px;height:17px;overflow:hidden;text-overflow:ellipsis;white-space:now
rap}.mc_vtvc_meta_row
a{display:inline-block}.mc_vtvc_meta_row
a:hover{text-decoration:underline}.mc_vtvc_meta_block_area{position:relative}.mc_vtvc_meta_block,.mc_v
tvc_meta_block
a{color:#444}.b_dark
.mc_vtvc_meta_block{color:#edebe9}.mc_vtvc_meta_row>:nth-of-type(n+2)::before{content:"
?"
}.mc_vtvc_meta_row
.mc_vtvc_meta_row_channel::before{content:"
">
"}.mc_vtvc_kmt_title{line-height:18px;padding-bottom:4px;font-weight:bold;color:#00809d;text-transform:u
ppercase;font-size:11px}.mc_vtvc_kmt,.mc_vtvc_con_rc.onhov
.wkmt
.mc_vtvc_meta_row,.mc_vtvc_con_rc.onhov
.wkmt
.tibc_tt{display:none}.mc_vtvc_con_rc.onhov
.wkmt
```

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.mc_vtvc_title{max-height:18px;margin-bottom:18px;overflow:hidden}.mc_vtvc_con_rc.onhov.mmsts
.mc_vtvc_title{visibility:hidden}.mc_vtvc_con_rc.onhov
.mc_vtvc_kmt{display:block}.mc_vtvc_kmt_content
.b_factrow{line-height:17px;font-size:11px;max-height:34px;overflow:hidden;text-overflow:ellipsis;padding:
0 16px 0 0;color:#444}.mc_vtvc_meta
.mc_vtvc_kmt_title{line-height:18px}.mc_vtvc_title:hover{text-decoration:none}.mc_vtvc_meta_pubdate{co
lor:#444;padding-bottom:3px}.mc_vtvc_meta_channel{color:#444}.mc_vtvc_meta_w,.mc_vplvc_meta_w{po
sition:relative}.mc_vtvc_meta_bg_w,.mc_vplvc_meta_bg_w{height:100%;width:100%;overflow:hidden;posit
ion:absolute;top:0}.mc_vtvc_meta_bg_w .cico,.mc_vplvc_meta_bg_w
.cico{border-radius:0;overflow:visible}.dg_u .mm_vidch_th_c{overflow:visible}.dg_u .mm_vidch_th_bg
img{margin-top:-20px}.emptyStyleForDebuggingPurpose{top:0}.mc_vtvc_meta_w
.mc_vtvc_meta{background:rgba(255,255,255,.75)}.mc_vtvc_meta_bg_w img,.mc_vtvc_meta_bg_w
.mc_vtvc_cb_w{filter:blur(25px);transform:scale(1.2)}body{--video-metadata-channel-color:#3c3c3c}body.b
_dark{--video-metadata-channel-color:unset}.vsarf .mc_vtvc_meta_pubdate{color:unset}.vsarf
.mc_vtvc_meta_channel{color:var(--video-metadata-channel-color)}.vsarf .mc_vtvc .mc_vtvc_meta_w
.mc_vtvc_title,.vsarf .mc_vtvc .mc_vtvc_meta_w .mc_vtvc_title strong{font-weight:bold}.vsarf
.mc_vtvc_meta_w .mc_vtvc_meta_row{font-size:13px}.emptyStyleForDebuggingPurpose{top:0}.vsarf
.mc_vtvc_th
.cico{height:132px}.emptyStyleForDebuggingPurpose{top:0}.emptyStyleForDebuggingPurpose{top:0}.empt
yStyleForDebuggingPurpose{top:0}.emptyStyleForDebuggingPurpose{top:0}.emptyStyleForDebuggingPurp
ose{top:0}.emptyStyleForDebuggingPurpose{top:0}.emptyStyleForDebuggingPurpose{top:0}.vtbc
.mv_vtvc_play{display:inline-block;position:absolute;bottom:8px;left:9px;height:8px;width:7px}.vtbc
.mv_vtvc_play_ext{background:url(/rp/Lp38sn_O4jegSK0IHxZVxyp-yKQ.png) -172px
-31px;display:inline-block;height:8px;width:12px;position:absolute;bottom:8px;left:6px}.vtbc
.pivot{height:20px;width:8px;min-width:8px}.vtbc
.mv_vtvc_play{background:url(
MAAADHKvg1AAAAIVBMVEX////////////////////////////////////9/gMdvAAAACnRSTIMAETNEVWwImbv
uo4D1oAAAAB9JREFUCB1jmMoABKuaQcSqQhCxKgFGgLhNQIkpQAwA8zkLyQA16F0AAAAASUVO
RK5CYII=)}.mc_bc_w{height:18px;padding:8px;text-align:right}.mc_bc{background-color:rgba(0,0,0,.75);p
adding:2px
8px;line-height:14px;color:#fff;display:inline-block;vertical-align:middle;border-radius:2px;font-weight:bold}
.mc_bc_w .pivot{text-align:center;margin-right:1px;height:14px}.vsarr .mmgrid .mc_bc_w
.mc_bc{background-color:rgba(0,0,0,.75);opacity:1}.mmsi{height:16px;width:16px;position:relative;top:5px;
padding-right:var(--smtc-gap-between-content-xx-small)}.mmsi-microsoftnews,.mmsi-msn{top:3px}.vrhdata
{display:none}.vrhc line.nhvpv .pffvi,.vrhc line.nhvpv[data-tps="S"] .pffvt,.vrhc line.nhvpv[data-tps="M"]
.pffvt,.vrhc line.nhvpv[data-tps="L"] .pffvt{display:inline-flex}.vrhc line.nhvpv .vrhct.pffv
.vrhc .vrhc line.nhvpv .vrhct.pffv
.vrhc .vrhc line.nhvpv .vrhct.pffv
.player_ol{background:var(--mai-smtc-background-ctrl-on-image-hover);transition:background-color
.5s;display:flex;align-items:center;justify-content:center;padding:var(--smtc-gap-between-content-x-small);ga
p:var(--smtc-gap-between-content-x-small);box-sizing:border-box}.mc_vtvc_th img{transition:all .3s
ease-out}.nhvpv+.mc_vtvc_th
img{transform:scale(1.1)}.smtplayerhtml5{height:100%;width:100%;overflow:hidden}.smtplayerhtml5
```

```
video{ min-height:100%;min-width:100% }.smtplayerhtml5
.videoplaying{ background-color:#000 }.smtplayerhtml5.hide{ display:none }.pffvt{ display:none;color:var(--mai
i-smtc-foreground-ctrl-on-image-rest);font:var(--bing-smtc-text-global-subtitle2-strong)}.pffvi{ mask:url(/rp/ui
07wU6K7FR_inzG7DRbP1i8fGo.svg) center
no-repeat;mask-size:12px;background:var(--bing-smtc-background-card-on-image-default);width:20px;height
:20px;flex-shrink:0;align-self:flex-start}[data-tps="L"]
.pffvt{ font:var(--bing-smtc-text-global-subtitle2-strong)}[data-tps="L"]
.pffvi{ width:22px;height:22px;mask-size:16px}[data-tps="S"] .pffvt{ font-size:0}[data-tps="S"]
.pffvi{ width:24px;height:24px;mask-size:24px;align-self:center }.hvpv.h5s
.pffvt{ display:inline-flex }.hvpv.h5s .vrhtc.pffv .vrhol{ display:none }.hvpv.h5s .vrhtc.pffv
.player_ol{ background:var(--mai-smtc-background-ctrl-on-image-hover);transition:background-color
.5s;display:flex;align-items:center;justify-content:center;padding:var(--smtc-gap-between-content-x-small);ga
p:var(--smtc-gap-between-content-x-small);box-sizing:border-box }.pffvt{ text-decoration:underline }.vrhpc
.vrhol{ position:absolute;width:100%;height:35px;max-height:35px;bottom:0;left:0;padding:0;background:non
e;display:block;z-index:9 }.vrhpc .vrhol.hide,.vrhpc .vrhol
.hide{ display:none }.vrhot{ white-space:nowrap;text-overflow:ellipsis;overflow:hidden;display:inline-block;po
sition:absolute;max-width:240px;height:18px;line-height:14px;margin-left:8px;top:10px;left:0;right:0;border-
radius:2px;padding-right:8px }.vrhot div{ display:inline-block }.vrhot
nt{ color:#fff;font-size:11px;font-weight:bold;background-color:rgba(0,0,0,.75);padding:2px
8px;margin-left:0;top:0;box-sizing:border-box;position:relative }.vrhc
.ricons{ position:absolute;right:8px;top:10px;left:auto;bottom:auto;height:18px;display:inline-block;cursor:poi
nter }.vrhol.icons_1 .vrhot{ margin-right:27px }.vrhol.icons_2 .vrhot{ margin-right:49px }.vrhol.icons_3
.vrhot{ margin-right:79px }.vrhol .vrhot
nt,.vsb_tr_chd .vrhol.icons_1
.vrhot{ margin-right:0 }.vpb{ position:absolute;display:block;bottom:0;left:0;height:4px }.vpb
div{ position:absolute }.vpb
nt{ width:0;background:#fff }.vpb
nt.test{ display:none }.vpb.back{ background-color:#999 }.vrhpc
.vrhol.npb{ height:36px;max-height:36px }.vrhol
.vadda{ width:22px;height:18px;padding:0;margin-right:0;margin-left:2px;bottom:0;position:relative;display:i
nline-block;z-index:1;background:rgba(0,0,0,.75);border-radius:2px;overflow:hidden }.vrhol
.vadda.hide{ display:none }.vrhol .vadda .mc_vfaa{ margin:3px 5px }.ricons .vol{ float:left }.ricons
.adultFlag{ float:right }.vol{ width:22px;height:18px;bottom:0;margin-left:1px;margin-right:1px;position:relati
ve;display:inline-block }.vol.hide,.vol
.hide{ display:none }.vol
.bg{ background:rgba(0,0,0,.75);border-radius:2px }.vol.bg,.vol
nt{ position:absolute;bottom:0 }.vol
.bg.volnb{ border-radius:0 0 2px 2px }.vol .volsliderHandle.bg{ border-radius:2px 2px 0 0 }.vol nt
.volsliderHandle{ height:70px;display:none;width:22px;float:left;bottom:18px;position:absolute;display:block
}.vol
nt .volsliderHandle.hide{ display:none }.volsliderHandle
.vsb{ height:54px;width:4px;background-color:#999;margin:9px auto
8px;position:relative;display:block;border-radius:2px }.volsliderHandle
.vsh{ height:6px;width:14px;padding:9px 7px 9px 7px;margin:0
-12px;display:block;position:absolute;top:30px }.volsliderHandle .vsh.hide{ display:none }.volsliderHandle
.vshi{ height:4px;width:14px;background-color:#fff;border-radius:2px }.volMuteIcon{ width:16px;height:14px;
margin:2px
```

```
4px;float:left}.volMuteHandle{width:22px;height:18px}.vo{background:url(/rp/ffZxBXEIP9WYOO0jhTaEl
yLhEVU.svg) no-repeat}.vm{background:url(/rp/fsX-ZVd03wB2TL0vmQJxSp4U9vs.svg)
no-repeat}.vl{background:url(/rp/YXYMPC1Rry_XJGc7Yg8lR4B2eEs.svg)
no-repeat}.vf{background:url(/rp/NosrIR4amKTs1zYxWy3laZN3HRk.svg)
no-repeat}@media(forced-colors:active){.vol{forced-color-adjust:none}.vrhc line .vt_vp,.vrhc.popout
.vt_vp,.vrhc.mousefollow
.vt_vp{position:absolute;bottom:0;border:hidden;padding:0;top:0;left:0;z-index:3}.vrhctc
.hide{display:none}.vrh_clc .vt_vp,.vrh_clc .vrhctc .vrhi,.vrh_clc .player_ol{cursor:pointer}.vrh_clc
.cico{border-radius:0}.vrhctc{border:hidden;top:0;left:0;padding:0}.vrhc.mousefollow .vrhctc,.vrhc.popout
.vrhctc{background-color:#999}.vrhctpc.load
.player_ol{background:url(/rp/J_o2maogFDeUOsovPjL-ofEuxJ4.gif) center center no-repeat}.vrhc line .vrhctc
.vrhi,.vrhc.popout .vrhctc .vrhi,.vrhc.mousefollow .vrhctc
.vrhi{position:absolute!important;border:hidden;z-index:2;padding:0;left:0;top:0}.player_ol{position:absolute
;width:100%;height:100%;bottom:0;border:hidden;z-index:7}.vrhc.popout,.vrhc
line,.vrhc.mousefollow{border-radius:6px;overflow:hidden;display:table-row-group;background:none}.vrhc.p
opout,.vrhc.mousefollow{z-index:4;box-shadow:0 4px 4px rgba(0,0,0,.1),0 2px 80px rgba(0,0,0,.2)}.vrhc
line{z-index:1;margin:0}.vrhc.popout,.vrhc line{position:absolute;top:0}.vrhc.popout{border:1px solid
#fff}.vrhc.mousefollow{position:fixed}.vrhcpc{position:relative;top:0;left:0;display:table-row}.vrhcpc
.vrhctc{position:relative;overflow:hidden}.vrhc.hide{display:none}@keyframes
vh_fadein{from{opacity:0}to{opacity:1}}.vrhc.not(.hide){animation:vh_fadein 250ms}.vrhc line
img{color:transparent}.vrhc
line.fullsize{height:100%}.vrhc,.vrhc.hover,.vrhc.link,.vrhc.active,.vrhc.visited{color:#000;text-decoration:no
ne}.vrhc.vrh_clc{cursor:pointer}a.hover-anchor{display:block;height:100%;width:100%;text-decoration:none
}.vrhstat{height:0;overflow:hidden}.mmlist .mc_vtvc .mc_vtvc_meta { padding: 12px 16px 16px 16px; }
.mmlist .mc_vtvc .mc_vtvc_meta_w { height: 112px; margin-top: -0px; } .mmlist .mc_vtvc .mc_vtvc_title {
height: 44px; line-height: 22px; margin-bottom: 0px; margin-top: 0px; } .mmlist .mc_vtvc
.mc_vtvc_meta_block_area { height: 40px; } .mmlist .mc_vtvc .vtmu, .mmlist .mc_vtvc .vtpl { bottom:
120px; } .mmlist .mc_vtvc_th_dock { height: 112px; } .mmlist .mc_vtvc_th .cico { height: 131px; } .mmlist
.mc_vtvc{margin:10px 1px 0}.mmlist .mc_vtvc_con_rc{display:flex}.cardless .mmlist
.mc_vtvc_con_rc{height:112px}.mmlist .mc_vtvc
.mc_vtvc_meta{display:flex;flex-direction:column;justify-content:space-between;margin:0 10px 4px
12px;padding:0}.mmlist
.mc_vtvc_title{font-weight:400;font-size:16px;height:44px;line-height:22px;margin-bottom:0;margin-top:0;c
olor:unset}.mmlist .mc_vtvc_meta_row{font-size:13px}.mmlist .mc_vtvc
.mc_vtvc_meta_block_area{height:unset}.mmlist .mc_vtvc .vtmu,.mmlist .mc_vtvc
.vtpl{bottom:8px}.cardless .mmlist .mc_vtvc{box-shadow:none}.cardless.mmlist
.mc_vtvc_center_play{width:32px;height:32px}.cardless.mmlist
.mc_vtvc_title{font-size:16px;color:unset}.cardless.mmlist
.mc_vtvc_meta_row{line-height:20px}.cardless.mmlist
.mc_vtvc_meta_pubdate{padding-bottom:2px;color:#666}.cardless.mmlist .mc_vtvc_th,.cardless.mmlist
.mc_vtvc_th .cico,.cardless.mmlist .mc_vtvc_th div.rms_img{border-radius:6px}.cardless.mmlist
.mc_vtvc_th{height:111px}.cardless.mmlist
```

# Lead acid battery theory

```
.mc_vtvc_htc{border-radius:6px;overflow:hidden}#serpvidans.vasac.cardless{box-shadow:none}.cardless.m  
mllist .mc_bc{padding:2px 8px;line-height:14px;border-radius:2px;font-weight:normal}.mmlist  
.mc_vtvc:hover  
.mc_vtvc_title{text-decoration:underline}.mmgrid>div{width:197px;display:inline-block;margin-right:8px;m  
argin-bottom:8px;box-shadow:0 0 0 1px  
rgba(0,0,0,.05);position:relative;vertical-align:top;overflow:hidden;white-space:normal;border-radius:6px}.vs  
arr .mmgrid>div,.vsarr1stbig .mmgrid>div{margin-right:8px;margin-bottom:8px}#serpvidansrr .mc_vtvc  
.mc_vtvc_meta{height:auto}#serpvidansrr .mc_vtvc  
.mc_vtvc_title{display:-webkit-box;-webkit-line-clamp:2;-webkit-box-orient:vertical}.mmgrid  
.mc_tc{border:0}.vsa .mmgrid>div:nth-child(3n){margin-right:0}.vsa  
.b_moreLink{padding-top:4px}#serpvidansrr  
.mc_vtvc_meta_row{line-height:18px;font-size:100%;height:17px}.vsarr  
.mmgrid>div:nth-child(2n){margin-right:0}#serpvidansrr .mc_vtvc .vtmu,#serpvidansrr .mc_vtvc  
.vtpl{bottom:128px}.vsarr1stbig .mmgrid>div:nth-child(2){margin-right:0}#serpvidansrr.uipolish  
.mc_vtvc_meta_pubdate,#serpvidansrr.uipolish .mc_vtvc_meta_channel,#serpvidansrr.uipolish #vidans2  
.b_videocard .video_metadata .video_source{color:#767676}#serpvidansrr #vidans2 .b_videocard  
.video_metadata_container,#serpvidansrr #vidans2 .b_videocard .video_metadata_container  
.video_metadata>h3{width:100%}@media(max-width:1362.9px){#serpvidansrr  
.mmgrid>div{width:168px;height:206px}#serpvidansrr .mmgrid>div .cico,#serpvidansrr .mmgrid>div .cico  
.rms_img{width:168px;height:100px}#serpvidansrr .mc_vtvc .mc_vtvc_meta{padding:12px}#serpvidansrr  
.mc_vtvc .mc_vtvc_title{height:32px;line-height:16px;margin-bottom:16px}#serpvidansrr .mc_vtvc  
.mc_vtvc_meta_block_area{height:34px}#serpvidansrr  
.mc_vtvc_meta_row{line-height:15px;font-size:13px;height:15px}#serpvidansrr  
.mc_vtvc_meta_pubdate{padding-bottom:4px}#serpvidansrr .mc_vtvc .vtmu,#serpvidansrr .mc_vtvc  
.vtpl{bottom:114px}#serpvidansrr #vidans2 .b_videocard .videoPlayer,#serpvidansrr #vidans2 .b_videocard  
.videoPlayer .cico,#serpvidansrr #vidans2 .b_videocard .videoPlayer .cico  
.rms_img{width:343px!important;height:194px!important;margin-right:0} @media(max-width:1274.9px){#s  
erpvidansrr .mmgrid>div{width:124px;height:164px}#serpvidansrr .mmgrid>div .cico,#serpvidansrr  
.mmgrid>div .cico .rms_img{width:124px;height:76px}#serpvidansrr .mc_vtvc  
.mc_vtvc_meta{padding:8px}#serpvidansrr .mc_vtvc  
.mc_vtvc_title{height:32px;line-height:16px;margin-bottom:12px}#serpvidansrr .mc_vtvc  
.mc_vtvc_meta_block_area{height:28px}#serpvidansrr  
.mc_vtvc_meta_row{line-height:13px;font-size:11px;height:13px}#serpvidansrr  
.mc_vtvc_meta_pubdate{padding-bottom:2px}#serpvidansrr .mc_vtvc .vtmu,#serpvidansrr .mc_vtvc  
.vtpl{bottom:96px}#serpvidansrr #vidans2 .b_videocard .videoPlayer,#serpvidansrr #vidans2 .b_videocard  
.videoPlayer .cico,#serpvidansrr #vidans2 .b_videocard .videoPlayer .cico  
.rms_img{width:256px!important;height:144px!important;margin-right:0}#serpvidansrr .maskthumb  
.mc_bc_w{padding:8px 4px 4px 8px}#serpvidansrr.withsplitline  
.mmgrid>div:nth-last-child(1),#serpvidansrr.withsplitline  
.mmgrid>div:nth-last-child(2){margin-bottom:24px}#serpvidansrr.withsplitline .mmgrid{border-bottom:1px  
solid #ecec; margin-bottom:16px}#serpvidansrr #vidans2 .b_videocard  
.video_metadata{max-width:auto;padding:12px 16px}#serpvidansrr #vidans2
```

# Lead acid battery theory

.b\_videocard{margin-bottom:12px;box-shadow:0 0 1px rgba(0,0,0,.05),0 2px 3px rgba(0,0,0,.1);border-radius:6px}#serpvidansrr .b\_rich{padding-top:0}#serpvidansrr #vidans2 .videoPlayer{border-radius:6px 6px 0 0;overflow:hidden}#serpvidansrr #vidans2 .b\_videocard .video\_metadata>h3{white-space:nowrap;overflow:hidden;text-overflow:ellipsis;-webkit-line-clamp:1;line-height:15px;height:15px;font-size:13px;color:#000;margin-bottom:20px;font-family:"Arial",Helvetica,Sans-Serif;font-style:normal;display:block}#serpvidansrr.vsarr1stbig #vidans2 .b\_videocard .video\_metadata .actionmenu{display:none}#serpvidansrr #vidans2 .b\_videocard .video\_summary,#serpvidansrr #vidans2 .b\_videocard .video\_source{line-height:15px}#serpvidansrr #vidans2 .b\_videocard .videoPlayer .vtbc{right:0}Videos of Lead Acid Battery TheoryWatch video3:57How lead acid battery works | Working principle animation Owl WiS267K viewsFeb 21, 2022Watch full videoWatch video4:00Lead Acid Battery: How Do They Work? | Working Animation | Electrical4U Electrical4U1.1M viewsMay 9, 2013Watch video8:10Lead Acid Battery Explained ? | Working Principle with Animation | Battery Basics for Beginners Physics, Materials Science and Nano Lecture Series857 views10 months agoWatch video6:12Lead Acid Battery | Engineering Chemistry | Frequently Asked Questions | LearnEngg LearnEngg8.3K viewsFeb 4, 2020Watch full video.sb\_doct\_txt{color:#4007a2;font-size:11px;line-height:21px;margin-right:3px;vertical-align:super}.b\_dark .sb\_doct\_txt{color:#82c7ff}p>.news\_dt{color:#767676}TSFX[PDF]Lecture: Lead-acid batteries - TSFXIf we discharge the battery more slowly, say at a current of  $C/10$ , then we might expect that the battery would run longer (10 hours) before becoming discharged.

In simple terms, the electrical charge of the battery is produced when the sulfate in the sulfuric acid bonds with the lead components. To recharge the battery, this reaction is reversed, ...

The grid structure of the lead acid battery is made from a lead alloy. Pure lead is too soft and would not support itself, so small quantities of other metals are added to get the mechanical strength and ...

At its core, a lead-acid battery embodies a sophisticated interplay of chemical reactions housed within a simple yet robust casing. Comprising lead dioxide, lead, and a sulfuric acid electrolyte solution, this ...

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